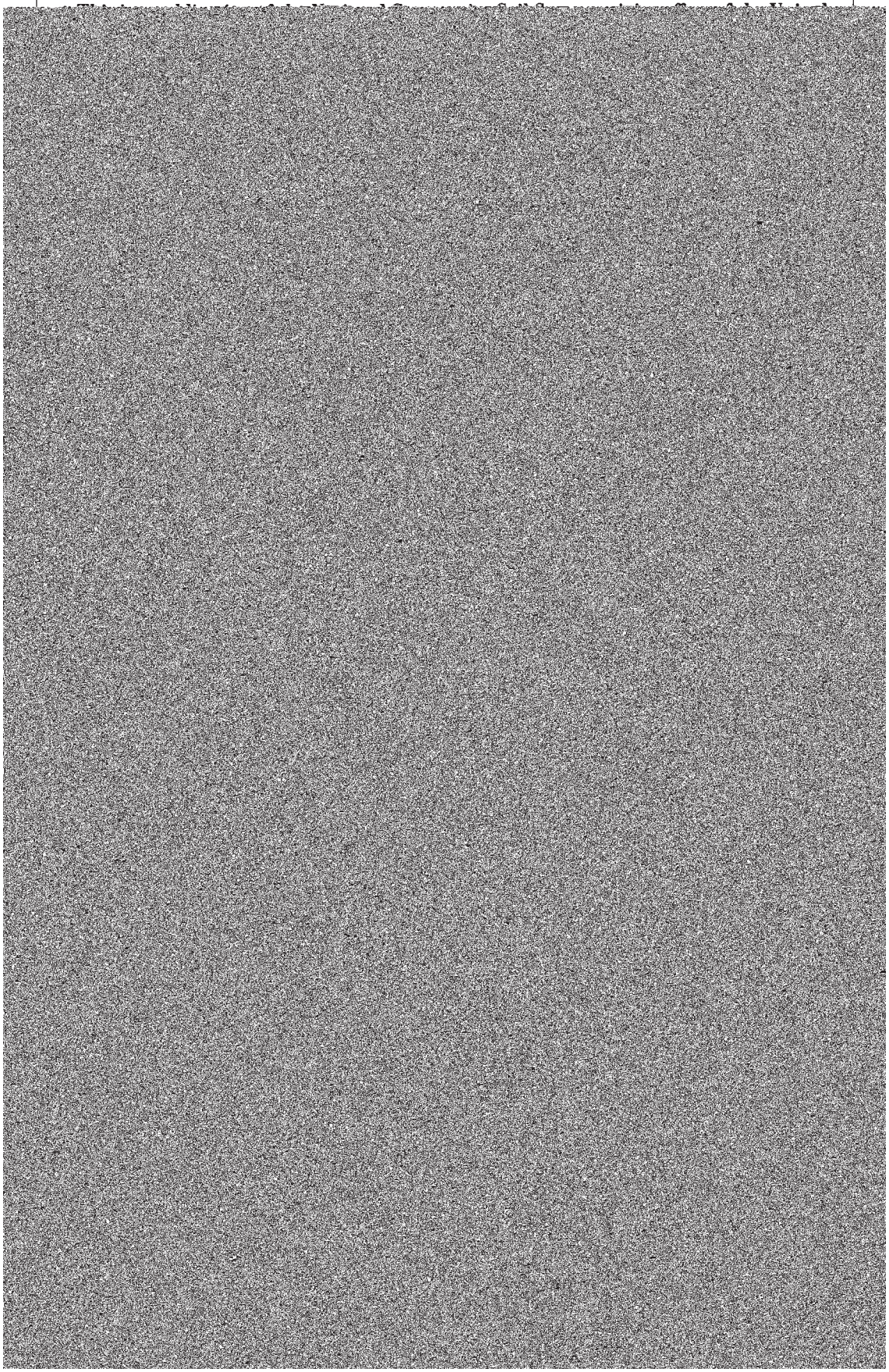
SOIL SURVEY OF

Kendall County, Illinois

United States Department of Agriculture
Soil Conservation Service
In cooperation with
Illinois Agricultural Experiment Station



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SOILS SURVEYED BY JOHN E. PASCHKE AND BRUCE E. CURRIE,[1] SOIL CONSERVATION SERVICE

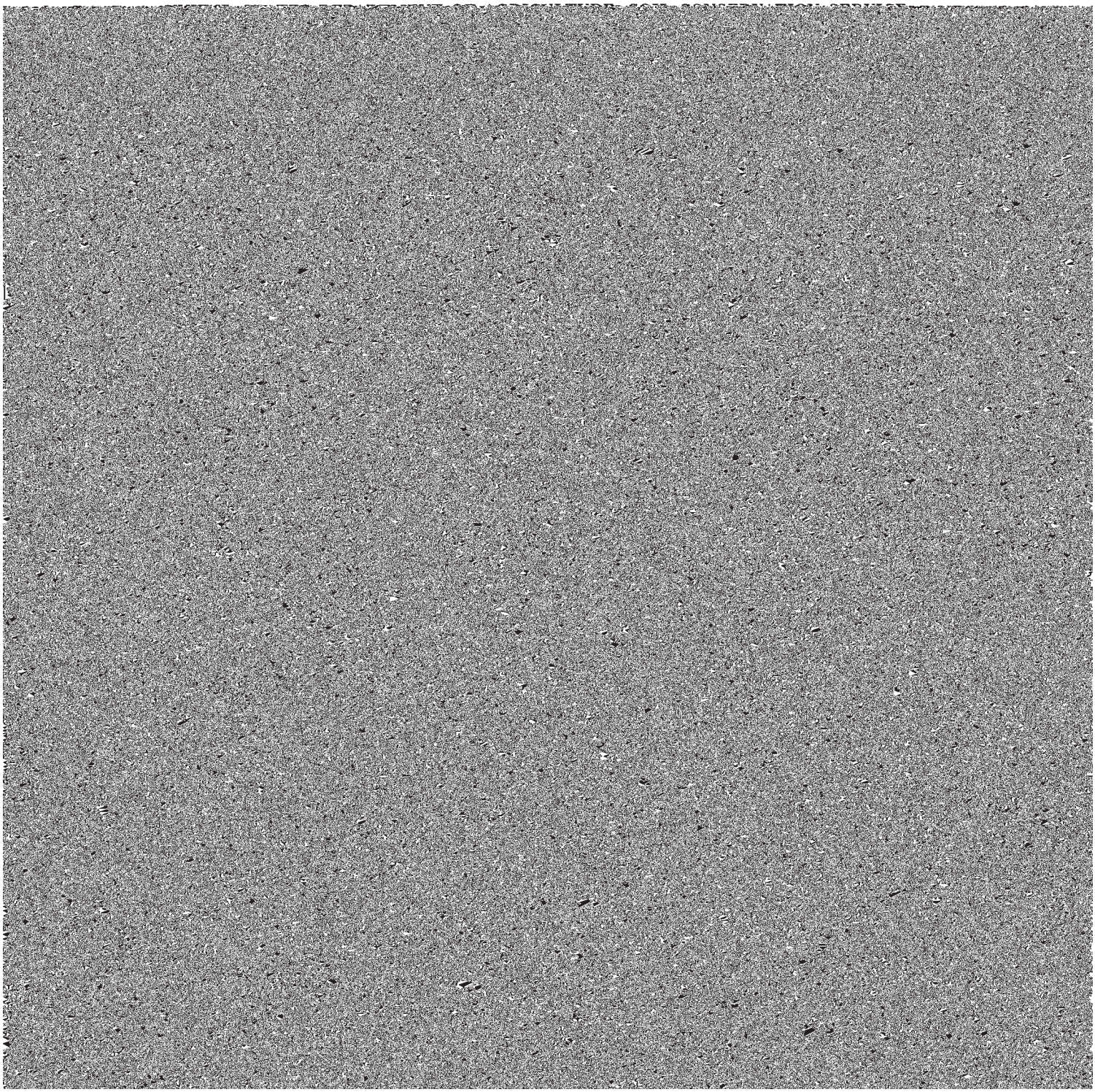


TABLE 1.—*Temperature and precipitation data*

[Data for temperature and rainfall are based on records for the period 1931–60. The data are a combination of records from Aurora and Morris]

Month	Average daily temperature	Average total precipitation[1]
	°F	*Inches*
January	25	1.7
February	27	1.5
March	36	2.4
April	49	3.2
May	60	3.7
June	70	3.9
July	74	3.0
August	73	3.2
September	65	3.0
October	54	2.7
November	39	2.1
December	28	1.8
Year	50	32.4

[1] Including all rainfall and melted snowfall. Normally, 10 inches of snow is the equivalent of 1 inch of water.

(*4*).[2] The Bloomington ridged plain section covers most of the county. Only the area of nearly level soils in the southeastern part of the county is in the Kankakee plain section.

The relief is mainly level to gently sloping but is rolling to steep in the morainal areas and along the river and stream valleys. The bedrock has been greatly modified by glaciation. Except for two large areas indicated on the General Soil Map and several small areas in the Fox River Valley, the bedrock is 20 to 130 feet below the glacial drift (*5*).

The elevation above sea level ranges from 800 feet on the Marseilles Moraine about 2 miles southwest of Yorkville to 550 feet in the channel of the Fox River at Millington.

Kendall County is drained entirely by surface streams. The northern and western two-thirds of the county drains to the Fox River, which flows south and west and into the Illinois River at Ottawa, Illinois. The rest of the county drains south directly to the Illinois River.

Climate

Kendall County has a typical continental climate of cold winters, warm summers, and frequent short-period fluctuations in temperature, humidity, cloudiness, and wind direction. Prolonged warm spells in summer are infrequent. Major droughts are infrequent, but somewhat long spells of dry weather during the growing season are not unusual.

Temperature and precipitation data based on records from Aurora, which is in Kane County just north of Oswego, combined with records from Morris, which is in Grundy County about 20 miles south of Yorkville, are shown in table 1. The probability of specified freezing temperatures in spring and fall are given in table 2.

The average length of the growing season in Kendall County is 159 days. The term "growing season" is somewhat misleading because different crops are damaged at different temperatures. Also, temperatures on ridges differ considerably from temperatures in valleys during radiation freezes, the type most common in Illinois. Crops grown in the closed depressions where Houghton and Peotone soils occur are likely to be damaged by frost in May and October (*3*).

Winter months are the cloudiest. The percentage of possible sunshine ranges from an average of less than 45 for the period November through February to nearly 70 for the period July through August.

Precipitation averages 32.4 inches a year. More than half falls during the growing season, May through September.

In summer most of the rain falls during showers or thunderstorms of short duration. The average number of thunderstorms a year is 35. Many thunderstorms produce more than an inch of rain. Hail and damaging winds occasionally accompany the thunderstorms. The hail is most likely to damage field crops if it falls during the period June to August, but during this period in any particular year, hail-producing thunderstorms average less than one in any one place (*2*). Not in all hailstorms are there enough stones of sufficient size and quantity to damage crops extensively.

How This Survey Was Made

Soil scientists made this survey to learn what kinds of soils are in Kendall County, where they are located, and how they can be used. The soil scientists went into the county knowing they were likely to find many soils they had already seen and perhaps some they had not. They observed the steepness, length, and shape of slopes; the size and speed of streams; the kinds of native plants or crops; the kinds of rock; and many facts about the soils. They dug or bored many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends

TABLE 2.—*Probability of freezing temperatures in spring and in fall*

[All data based on temperatures recorded in a standard U.S. Weather Service shelter approximately 5 feet above the ground and in a representative location. At times the temperature is colder nearer the ground or in local areas subject to extreme air drainage. The data are based on a combination of records from Aurora and Morris for the period 1931–60]

Occurrence	Dates for given temperature				
	32° F	28° F	24° F	20° F	16° F
[illegible]	May 2	April 21	April 6	March 27	[illegible]

from the surface down into material that has not been changed much by leaching or by the roots of plants.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to nationwide, uniform procedures. The *soil series* and *soil phase* are the categories of soil classification most used in a local survey (*6*).

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, all the soils of one series have major horizons that are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Saybrook and Bryce, for example, are the names of two soil series. All the soils in the United States that have the same series name are essentially alike in those characteristics that affect their behavior in the undisturbed landscape.

Soils of one series can differ in texture of the surface layer and in slope, stoniness, or some other characteristic that affects use of the soils by man. On the basis of such differences, a soil series is divided into phases. The name of a soil phase indicates a feature that affects management. For example, Saybrook silt loam, 4 to 7 percent slopes, eroded, is one of the several phases within the Saybrook series.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other details that help in drawing boundaries accurately. The soil map in the back of this publication was prepared from aerial photographs.

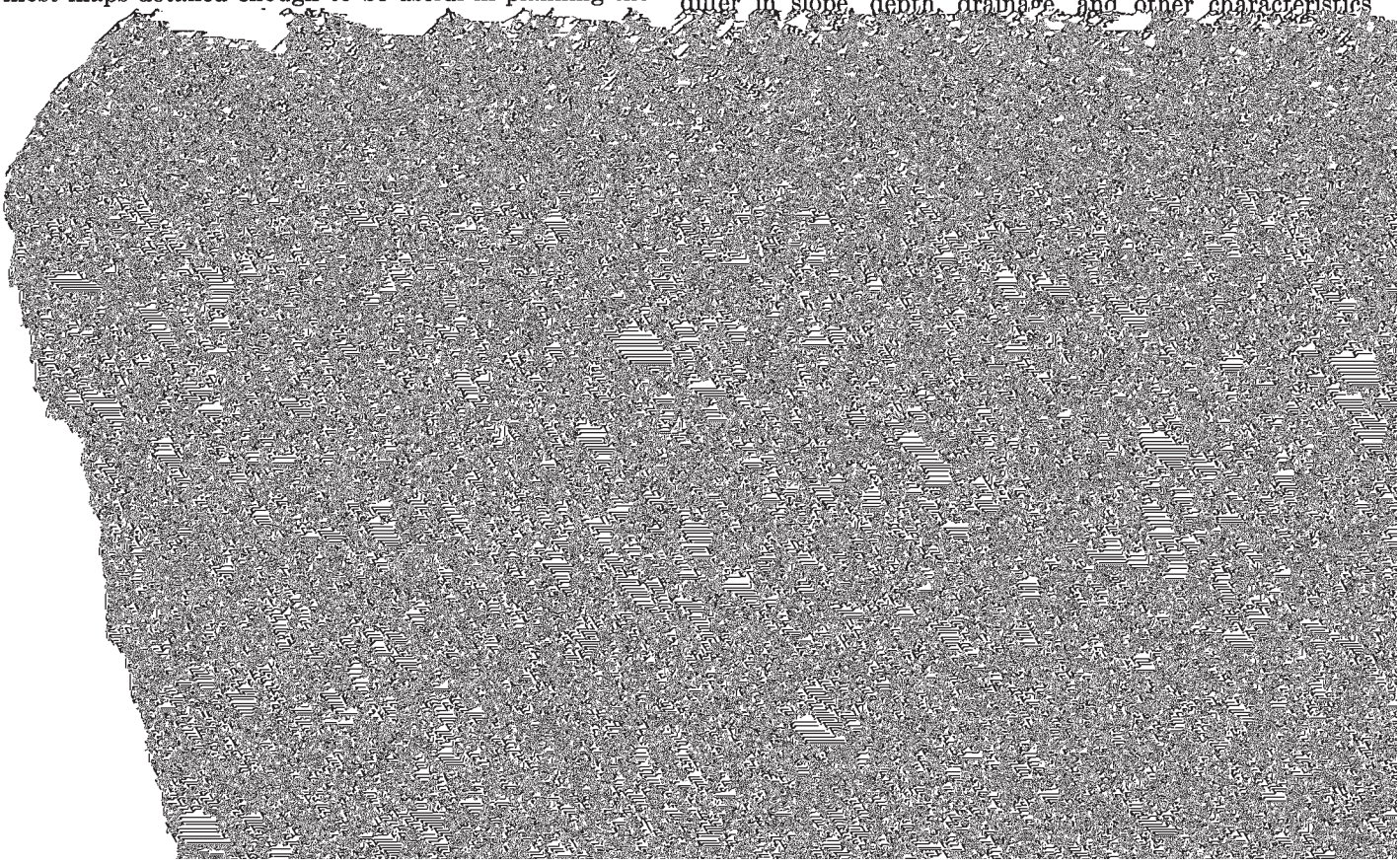
The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning the predict limitations or suitability of soils for present and potential uses.

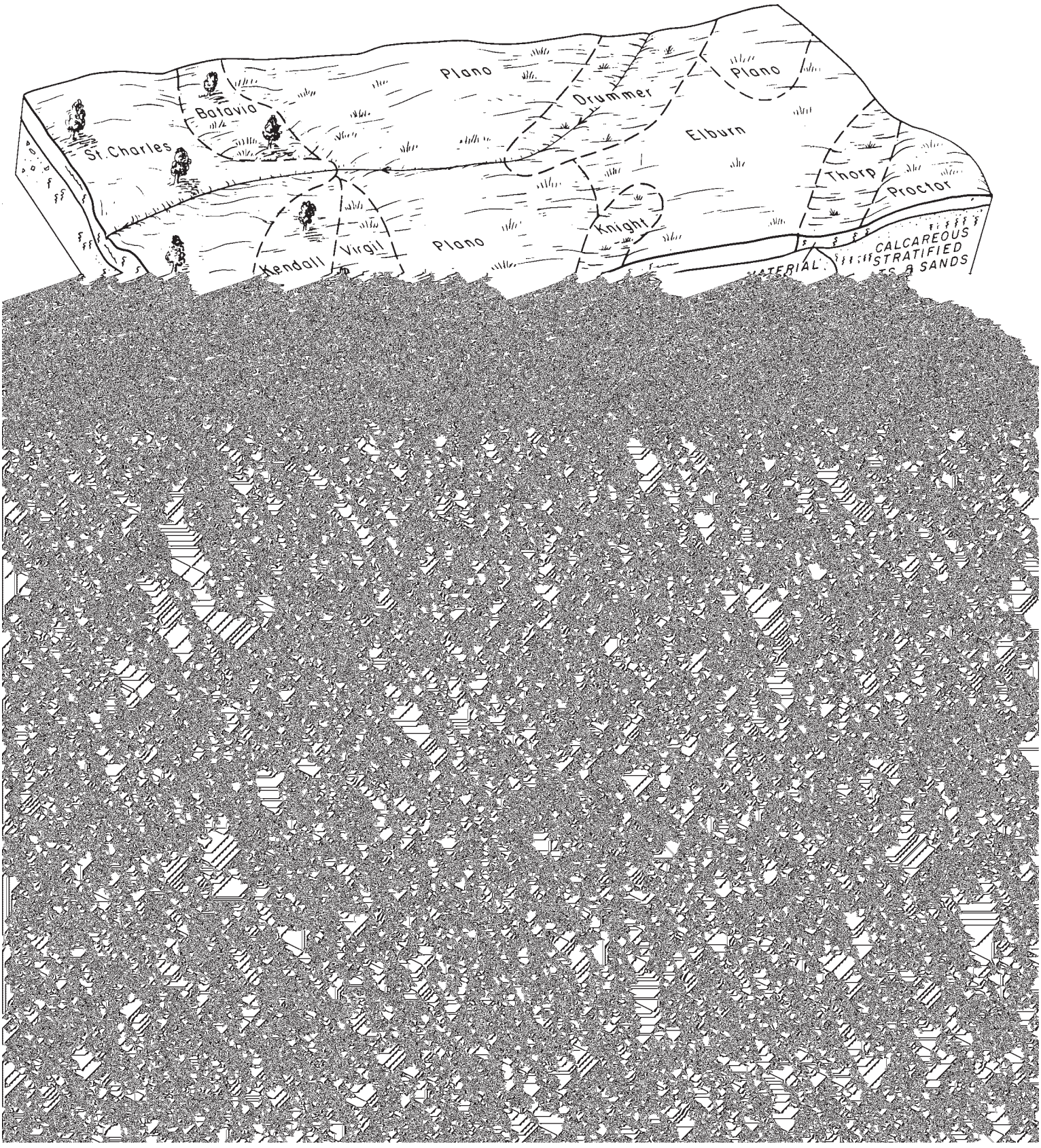
After data have been collected and tested for the key, or benchmark, soils in a survey area, the soil scientists set up trial groups of soils. They test these groups by further study and by consultation with farmers, agronomists, engineers, and others. They then adjust the groups according to the results of their studies and consultation. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under current methods of use and management.

General Soil Map

The general soil map at the back of this publication shows, in color, the soil associations in Kendall County. A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and several minor soils, and it is named for the major soils. The soils in one association may occur in another, but in a different pattern.

A map that shows soil associations is useful to people who want a general idea of the soils in a county, who want to compare different parts of a county, or who want to know the location of large tracts that are suitable for a certain kind of farming or other land use. Such a map is a useful general guide in managing a watershed, a wooded tract, or a wildlife area or in planning engineering works, recreational facilities, and community developments. It is not a suitable map for planning the management of a farm or field or for selecting the exact location of a road, building, or similar structure, because the soils in any one association ordinarily differ in slope, depth, drainage, and other characteristics




Plano
Plano
Batavia
Drummer
Elburn
St. Charles
Thorp
Proctor
Knight
Kendall
Virgil
Plano
CALCAREOUS
STRATIFIED
SANDS

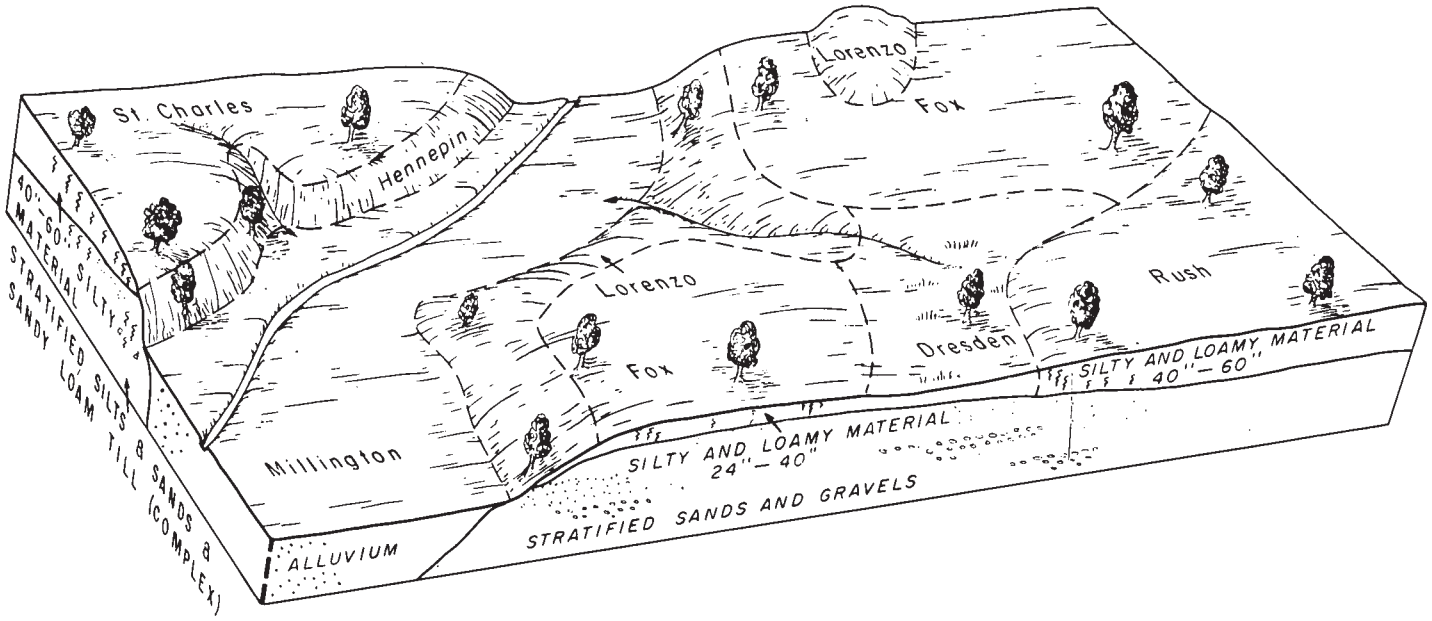


Figure 3.—**Typical pattern of soils in the Millington-Lorenzo-Fox association.**

gravelly loam. The Waupecan and Brenton soils have moderate permeability, and the Dresden soils have moderately rapid permeability. The Waupecan and Dresden soils are moderate in organic-matter content, and the Brenton soils are high.

The soils of this association are well suited to corn and soybeans. Some areas of the Brenton soils and the associated, lower lying Drummer soils need artificial drainage. Tile drains along with shallow surface drains provide adequate drainage. The risk of contamination of the ground water from septic field effluent is a major concern of management.

4. *Strawn-Dodge association*

Gently sloping to steep, well-drained soils that formed in silt loam material and the underlying loam and silt loam glacial till

This association has the most variable relief in the county. It is on a terminal moraine that has many irregularly shaped ridges or hills, valleys, and closed depressions (fig. 5).

This association makes up about 5 percent of the county. It is about 35 percent Shawn soils, 30 percent Dodge soils, and 35 percent the minor Drummer, Lisbon, and La Rose soils.

Figure 4.—**On right, an area of Millington soils in which there are five fishponds. On left, light-colored Fox soils.**

Figure 5.—**A recreational area in the Strawn-Dodge soil association. The pond is in an area of the Drummer soils.**

The Strawn and Dodge soils have a surface layer of silt loam and a subsoil of silty clay loam to clay loam. The lower part of the subsoil and the underlying material are compact, calcareous glacial till. The Strawn soils are moderately sloping to steep, and the Dodge soils are gently sloping to moderately sloping. Soils of both series have moderate to moderately slow permeability. They are low in organic-matter content and are subject to severe erosion if they are cropped.

The moderately steep and steep soils in this association are suited to permanent pasture or woodland. A high percentage of the smaller wooded areas in the county is in this association.

5. Saybrook-Drummer-La Rose association

Well drained to poorly drained, nearly level to strongly sloping soils that formed in silt loam material and the underlying silt loam to loam glacial till

This association consists of somewhat rolling end moraines where the elevation varies more than 50 feet and ground moraines where the elevation varies less than 20 feet.

This association makes up about 33 percent of the county. It is about 38 percent Saybrook soils, 28 percent Drummer soils, 13 percent La Rose soils, and 12 percent the minor Lisbon soils and 9 percent the minor Brenton and Varna soils.

The Saybrook and La Rose soils are moderately well drained to well drained, and the Drummer soils are poorly drained. The Saybrook and Drummer soils formed in 2 to 3 feet of silty material and in the underlying material, and the La Rose soils formed in less than 2 feet of silty material and in the underlying compact, calcareous glacial till. The silty clay loam over stratified sandy loam and loam. Mundelein soils have a surface layer of silt loam and a subsoil of mainly silty clay loam over stratified clay loam and silt loam. Brenton soils have a surface layer of silt loam and a subsoil of silty clay loam and clay loam over stratified sandy loam, silt loam, and sand. The Mundelein soils are strongly alkaline in the lower part of the subsoil. All the major soils are high in organic-matter content and have moderate permeability.

Of the minor soils, Milford soils are poorly drained. Erosion is a moderate hazard on the more sloping Proctor, Barrington, and Plattville soils. Plattville and Ripon soils have limestone bedrock within 5 feet of the surface.

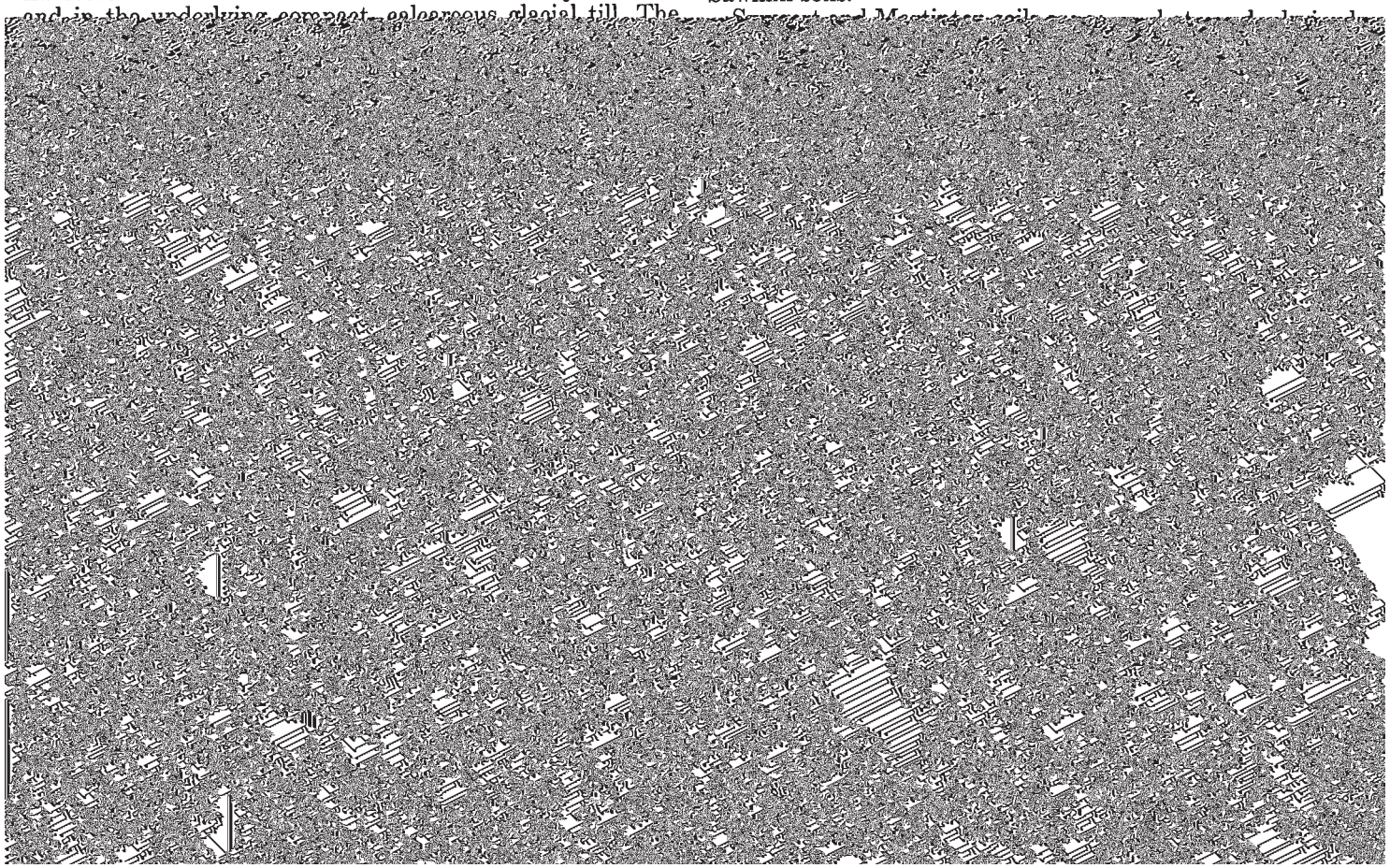
The soils of this association are well suited to intensive cropping. Corn and soybeans are grown on a high proportion of the acreage. The Drummer soils and many areas of the Mundelein and Brenton soils need artificial drainage. Tile drains along with good outlets provide adequate drainage.

7. Swygert-Bryce-Martinton association

Nearly level, somewhat poorly drained and poorly drained soils that formed in silty clay and silty clay loam lakebed sediments

This association is on a glacial lakebed. It is mainly nearly level, but in spots it is gently sloping. Dug ditches, all of which drain into Aux Sable Creek, provide drainage outlets for this area.

This association makes up about 14 percent of the county. It is about 31 percent Swygert soils, 29 percent Bryce soils, 19 percent Martinton soils, and 14 percent the minor Milford soils and 7 percent the minor Nappanee, Del Rey, and Sawmill soils.



one mapping unit, it is necessary to read both the description of the mapping unit and the description of the soil series to which it belongs.

An important part of the description of each soil series is the soil profile, that is, the sequence of layers from the surface downward to rock or other underlying material. Each series contains two descriptions of this profile. The first is brief and in terms familiar to the layman. The second is much more detailed and is for those who need to make thorough and precise studies of soils. The profile described in the series is representative of mapping units in that series. If the profile of a given mapping unit is different from the one described for the series, these differences are stated in describing the mapping unit, or they are differences that are apparent in the name of the mapping unit. Color terms are for moist soil unless otherwise stated.

As mentioned in the section "How This Survey Was Made," not all mapping units are members of a soil series. Gravel pits, for example, does not belong to a soil series but, nevertheless, is listed in alphabetic order along with the soil series.

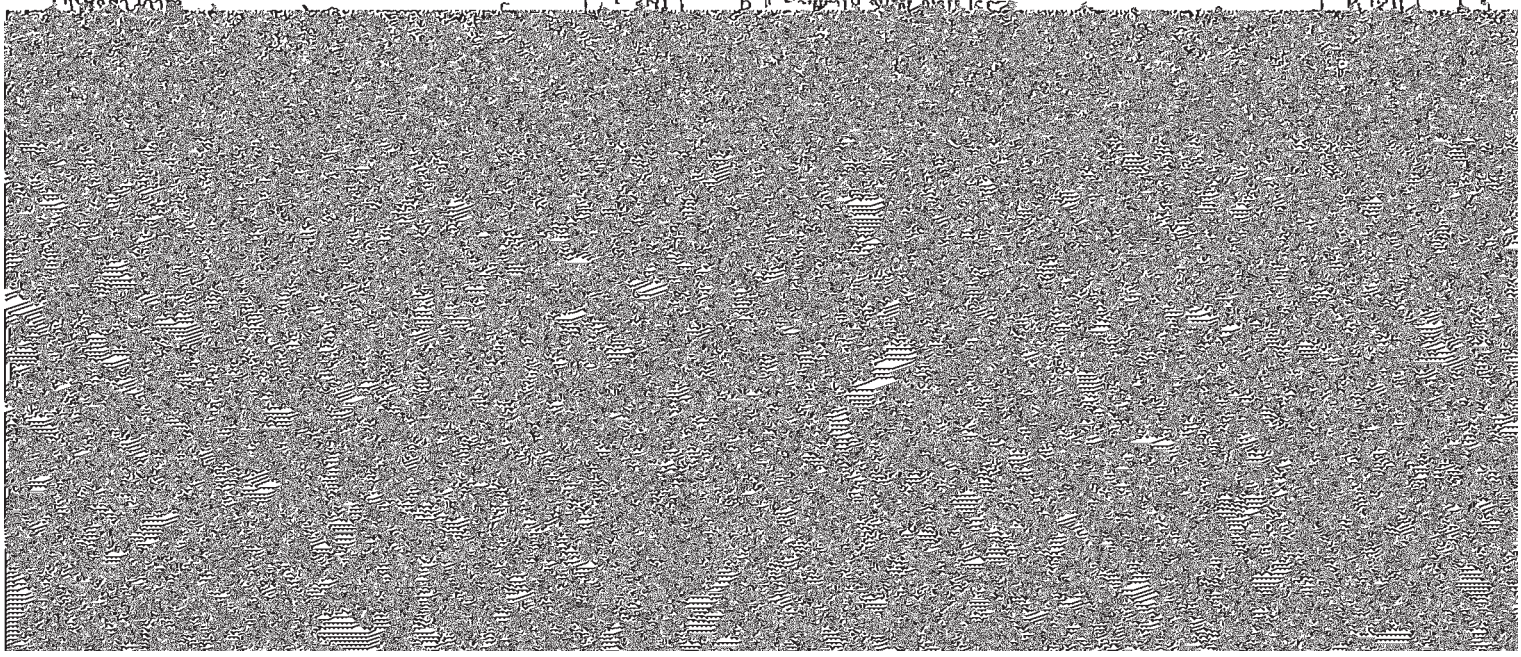
Some soil names are not identical to those used in adjacent counties. These differences are caused by variations in slope, composition of mapping units, and changes in soil classification.

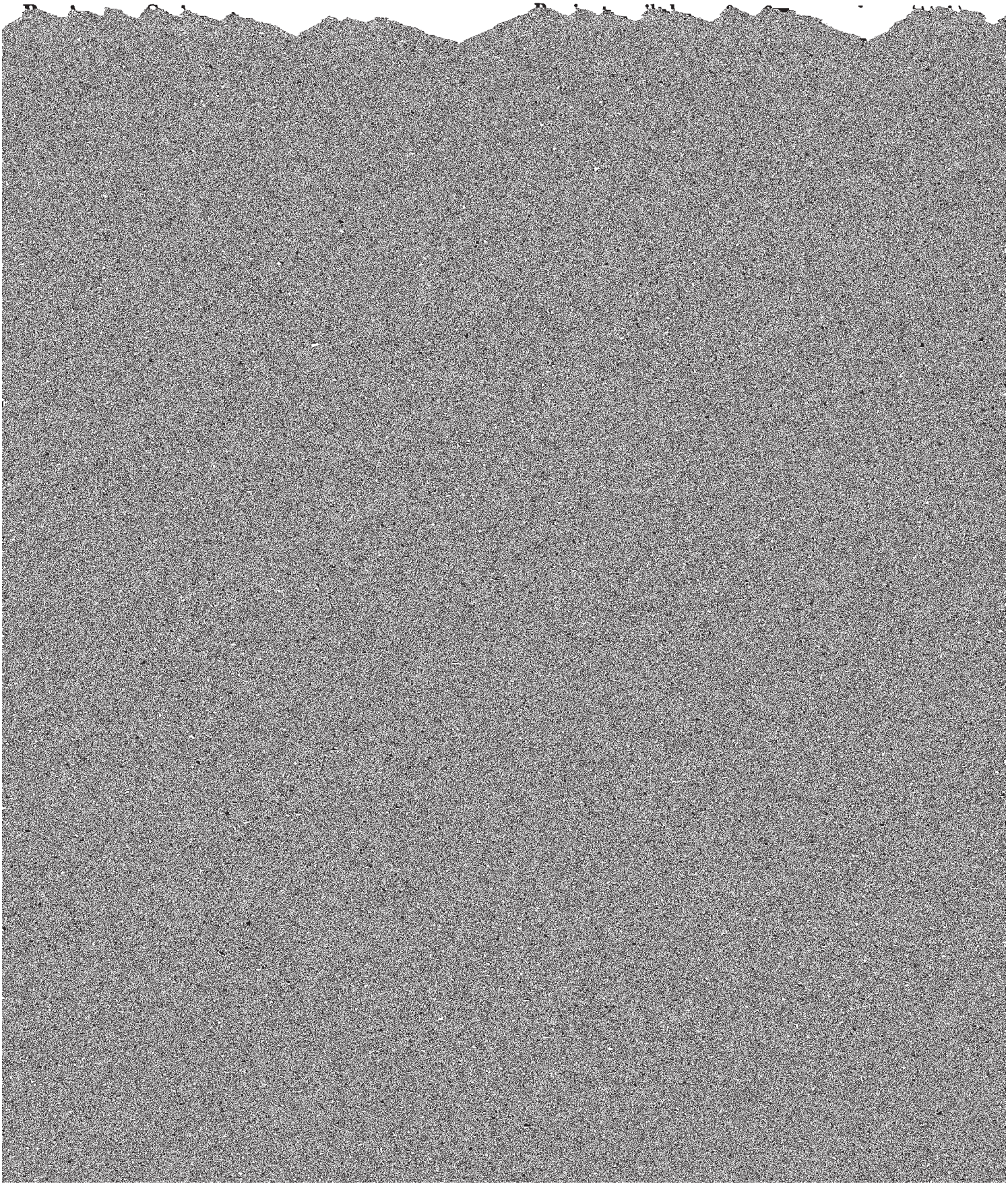
Following the name of each mapping unit is a symbol in parentheses. This symbol identifies the mapping unit on the detailed soil map. Listed at the end of each description of a mapping unit is the management group in which the mapping unit has been placed. The management group, tree planting group, and wildlife group for each soil can be learned by referring to the "Guide to Mapping Units" at the back of this survey.

The approximate acreage and proportionate extent of each mapping unit are shown in table 3. Many of the terms used in describing soils can be found in the Glossary, and more detailed information about the terminology and methods of soil mapping can be obtained from the Soil Survey Manual (*6*).

TABLE 3.—*Approximate acreage and proportionate extent of the soils*

Soil	Area	Extent	Soil	Area	Extent
	Acres	*Percent*		*Acres*	*Percent*
Barrington silt loam, 0 to 2 percent slopes	1,600	0.8	Mundelein silt loam	7,620	3.7
Barrington silt loam, 2 to 4 percent slopes	1,310	.6	Nappanee silt loam, 0 to 2 percent slopes	250	.1
Barrington silt loam, 4 to 7 percent slopes, eroded	620	.3	Nappanee silt loam, 2 to 4 percent slopes	140	.1
Batavia silt loam, 0 to 2 percent slopes	840	.4	Peotone silty clay loam	2,030	1.0
Batavia silt loam, 2 to 4 percent slopes	390	.2	Plano silt loam, 0 to 2 percent slopes	8,960	4.4
Brenton silt loam	7,100	3.5	Plano silt loam, 2 to 4 percent slopes	1,640	.8
Brenton silt loam, bedrock substratum	170	.1	Plano silt loam, 4 to 7 percent slopes, eroded	230	.1
Bryce silty clay	8,540	4.2	Plattville silt loam, 0 to 2 percent slopes	1,820	.9
Camden silt loam, 1 to 4 percent slopes	900	.4	Plattville silt loam, 2 to 4 percent slopes	540	.3
Camden silt loam, 4 to 7 percent slopes, eroded	560	.3	Proctor silt loam, 0 to 2 percent slopes	2,270	1.1
Camden silt loam, 7 to 12 percent slopes, eroded	240	.1	Proctor silt loam, 2 to 4 percent slopes	2,200	1.1
Cut and fill land	640	.3	Proctor silt loam, 4 to 7 percent slopes, eroded	280	.1
Del Rey silt loam	580	.3	Ripon silt loam, 1 to 4 percent slopes	350	.2
Dodge silt loam, 0 to 2 percent slopes	830	.4	Ripon silt loam, 4 to 7 percent slopes, eroded	100	(1)
Dodge silt loam, 2 to 4 percent slopes	2,110	1.1	Rush silt loam, 0 to 2 percent slopes	1,290	.6
Dodge silt loam, 4 to 7 percent slopes, eroded	500	.2	Rush silt loam, 2 to 4 percent slopes	550	.3
Dresden silt loam, 0 to 2 percent slopes	1,630	.8	St. Charles silt loam, 0 to 2 percent slopes	1,340	.7
Dresden silt loam, 2 to 4 percent slopes	2,900	1.4	St. Charles silt loam, 2 to 4 percent slopes	890	.4
Drummer silty clay loam	35,190	17.2	St. Charles silt loam, 4 to 7 percent slopes, eroded	240	.1
DuPage loam	1,250	.6	Sawmill silty clay loam	2,920	1.4





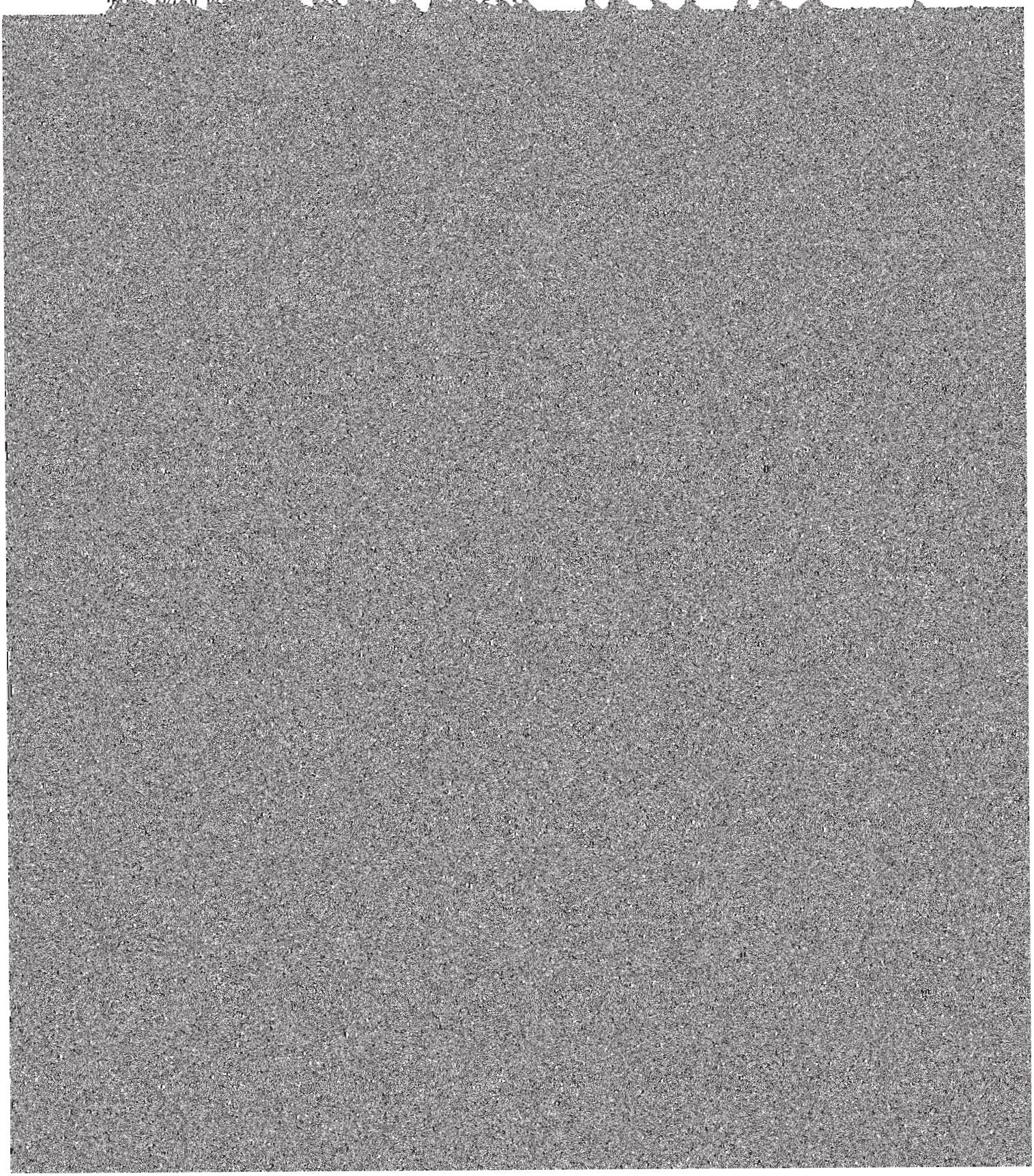
Permeability is moderate, and the available water capacity is high. The organic-matter content is moderate. Batavia soils are well suited to all the commonly grown crops, and most areas are farmed intensively and used for corn and soybeans. Increasing the organic-matter content and protecting the gently sloping soils from erosion are the major

This soil is suited to the crops commonly grown. Erosion is a hazard, but the size of the areas and the irregular topography limit the use of erosion control practices. Management group IIe-1.

Brenton Series

IIC—50 to 62 inches, grayish-brown (10YR 5/2) and yellowish-brown (10YR 5/6) stratified sand, silt loam, and sandy

plants. Many areas need additional artificial drainage if



has a gritty feel and silt loam in the lower 27 inches. The underlying material is light yellowish-brown stratified sand and silt. It is moderately alkaline glacial outwash.

Permeability is moderate, and the available water capacity is high. The organic-matter content is low. Most of the gently sloping and moderately sloping Camden soils are cultivated. These soils are suited to all the commonly grown crops. Increasing the organic-matter content and controlling erosion are the major concerns of management. Many of the strongly sloping areas are used for pasture or woodland.

Representative profile of Camden silt loam, 1 to 4 percent slopes, 126 feet south of road fence and 190 feet east of north-south road center, in the NW¼NW¼NE¼ sec. 3, T. 36 N., R. 6 E.

Ap—0 to 8 inches, dark-gray (10YR 4/1) silt loam; moderate, fine, granular structure; friable; neutral; abrupt, smooth boundary.

A2—8 to 14 inches, brown (10YR 5/3) silt loam that has dark-gray (10YR 4/1) stains; weak, fine, subangular blocky structure; friable; neutral; clear, smooth boundary.

B1t—14 to 18 inches, yellowish-brown (10YR 5/4) light silty clay loam; moderate, fine and very fine, subangular blocky structure; continuous coatings of dark yellowish brown (10YR 4/4) on peds; friable; neutral; clear, smooth boundary.

B21t—18 to 27 inches, yellowish-brown (10YR 5/4) silty clay loam; moderate, fine, subangular blocky structure; continuous coatings of dark yellowish brown (10YR 3/4) on peds; firm; slightly acid; gradual, smooth boundary.

IIB22t—27 to 36 inches, yellowish-brown (10YR 5/6) silty clay loam that has a noticeable sand content; moderate, fine, prismatic structure parting to moderate, fine to medium, subangular blocky; continuous coatings of dark brown (10YR 3/3) on peds; firm; slightly acid; clear, smooth boundary.

IIB23t—36 to 47 inches, brown to yellowish-brown (10YR 5/3 to

This soil is suited to the crops commonly grown in the county. Erosion is a hazard, but the size of the areas and the irregular topography limit the use of erosion control practices. Where practical, erosion control practices and minimum tillage reduce erosion. Management group IIe-1.

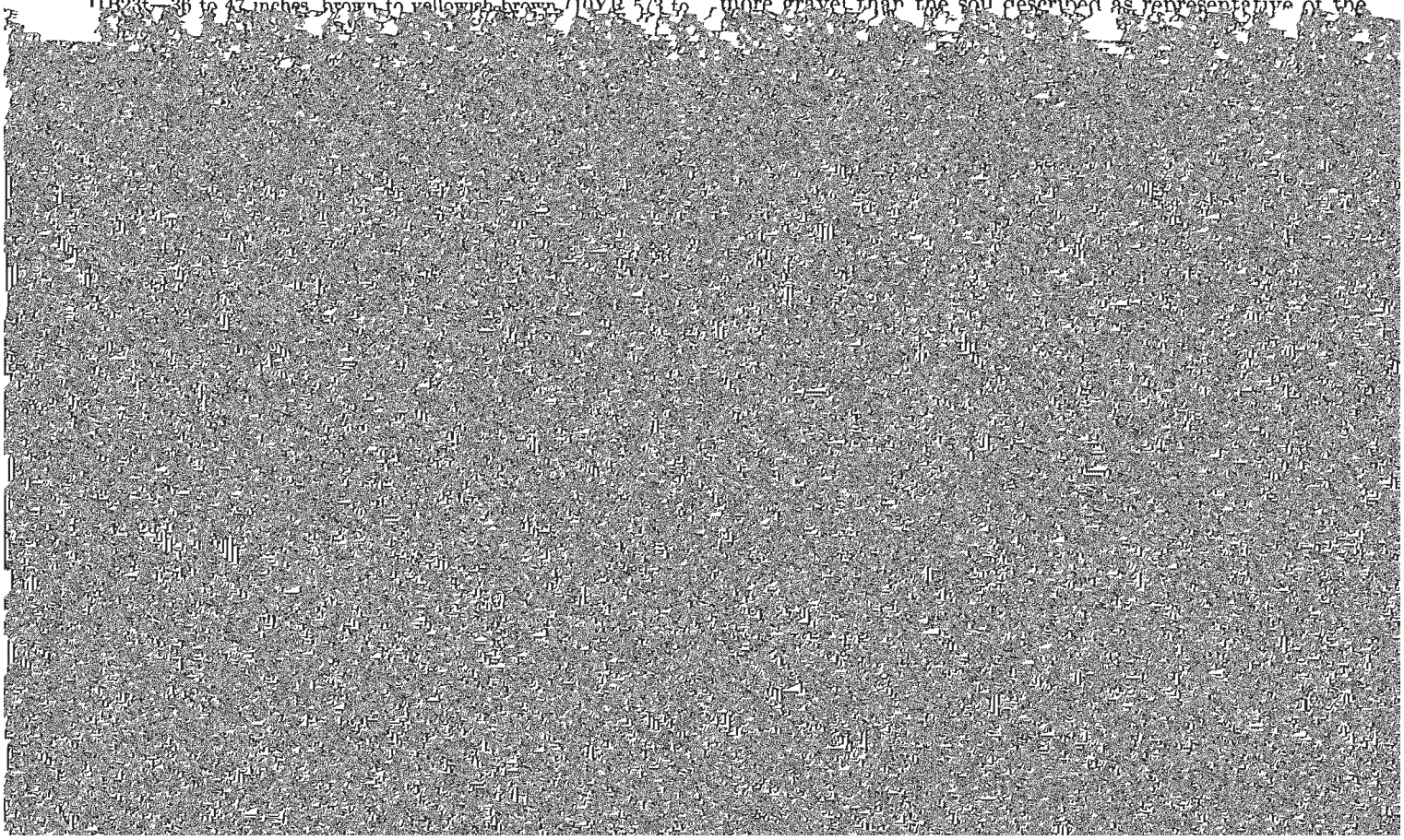
Camden silt loam, 4 to 7 percent slopes, eroded (134C2).—This soil is in outwash areas along the major streams. It has a profile similar to the one described as representative of the series, but the surface layer and subsoil are thinner. In most areas plowing has mixed subsoil material into the surface layer.

Included with this soil in mapping are small areas of St. Charles silt loam and areas where the surface layer is darker colored than is typical for Camden soils. Also included are small areas of soils that are more poorly drained than this Camden soil. Other inclusions are small areas of soils that are not stratified in the lower part of the subsoil or in the underlying material.

This soil is suited to the crops commonly grown in the county. Erosion is a hazard if the soil is cropped intensively. Erosion control practices that are suited to the topography reduce soil and water losses. Management group IIe-1.

Camden silt loam, 7 to 12 percent slopes, eroded (134D2).—This soil is on side slopes of outwash areas where they face drainageways or bottom lands. It has a profile similar to the one described as representative of the series, but the surface layer and subsoil are thinner. In most areas plowing has mixed subsoil material into the surface layer.

Included with this soil in mapping are small areas of soils that are not stratified in the lower part of the subsoil and in the underlying material and areas of soils that contain more gravel than the soil described as representative of the



high. The organic-matter content is low. Del Rey soils are well suited to all the commonly grown crops. Many areas are cropped along with the surrounding Martinton and Milford soils; others are in woodland and pasture. Some areas need additional drainage if they are to be cultivated early in spring.

Representative profile of Del Rey silt loam, 0 to 3 percent slopes, 105 feet west and 103 feet north of the northwest corner of concrete block building, in the SW¼NW¼SW¼NW¼ sec. 15, T. 35 N., R. 6 E.

A1—0 to 4 inches, very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate, fine, granular structure; friable; neutral; clear, smooth boundary.

A21—4 to 6 inches, dark-gray (10YR 4/1) silt loam; moderate, medium, platy structure parting to weak, fine, granular; friable; slightly acid; clear, smooth boundary.

A22—6 to 10 inches, grayish-brown (10YR 5/2) silt loam; common, fine, distinct, yellowish-brown (10YR 5/4) mottles; moderate, medium, platy structure parting to very fine subangular blocky; friable; medium acid; clear, smooth boundary.

B21t—10 to 13 inches, brown (10YR 5/3) light silty clay loam; common, fine, distinct, grayish-brown (2.5Y 5/2) mottles; moderate, very fine, subangular blocky structure; firm; strongly acid; clear, smooth boundary.

B22t—13 to 20 inches, grayish-brown (2.5Y 5/2) silty clay; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; moderate, fine, prismatic structure parting to strong, fine, subangular blocky; continuous coatings of dark grayish brown (10YR 4/2) to very dark gray (10YR 3/1) on ped surfaces; firm; strongly acid; clear, smooth boundary.

B23t—20 to 30 inches, grayish-grown (2.5Y 5/2) heavy silty clay loam; many, medium, distinct, yellowish-brown (10YR 5/6) mottles; moderate, medium, prismatic structure parting to strong, fine and medium, subangular blocky; continuous coatings of dark grayish brown (10YR 4/2) on ped surfaces; firm; medium acid; clear, wavy boundary.

B3—30 to 36 inches, grayish-brown (2.5Y 5/2) and yellowish-brown (10YR 5/8) silty clay loam; moderate, medium, prismatic structure parting to moderate, medium and coarse, subangular blocky; very dark gray (10YR 3/1) coatings vertically throughout horizon; firm; mildly alkaline; clear, wavy boundary.

C—36 to 52 inches, mixed strata of yellowish-brown (10YR 5/6) shaped ridges in the more rolling morainal areas. They formed in thin deposits of silt loam material and in the underlying silt loam and loam glacial till. The native vegetation was mixed hardwood trees.

In a representative profile the surface layer is dark grayish-brown silt loam about 6 inches thick. The subsurface layer is grayish-brown silt loam about 5 inches thick. The subsoil, about 24 inches thick, is yellowish-brown silty clay loam and clay loam in the upper 20 inches and light yellowish-brown loam in the lower 4 inches. The underlying material is light yellowish-brown loam. It is moderately alkaline glacial till.

Permeability is moderate, and the available water capacity is high. The organic-matter content is low. Most large areas of Dodge soils have been cleared and cultivated, but the smaller areas are in pasture or woodland. The soils are well suited to all the commonly grown crops. Maintaining good tilth, increasing the organic-matter content, and protecting the gently sloping and moderately sloping soils from erosion are the major concerns of management.

Representative profile of Dodge silt loam, 0 to 2 percent slopes, 31 feet west and 1,240 feet south of the northeast corner of sec. 11, T. 36 N., R. 7 E.

Ap—0 to 6 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; friable; neutral; abrupt, smooth boundary.

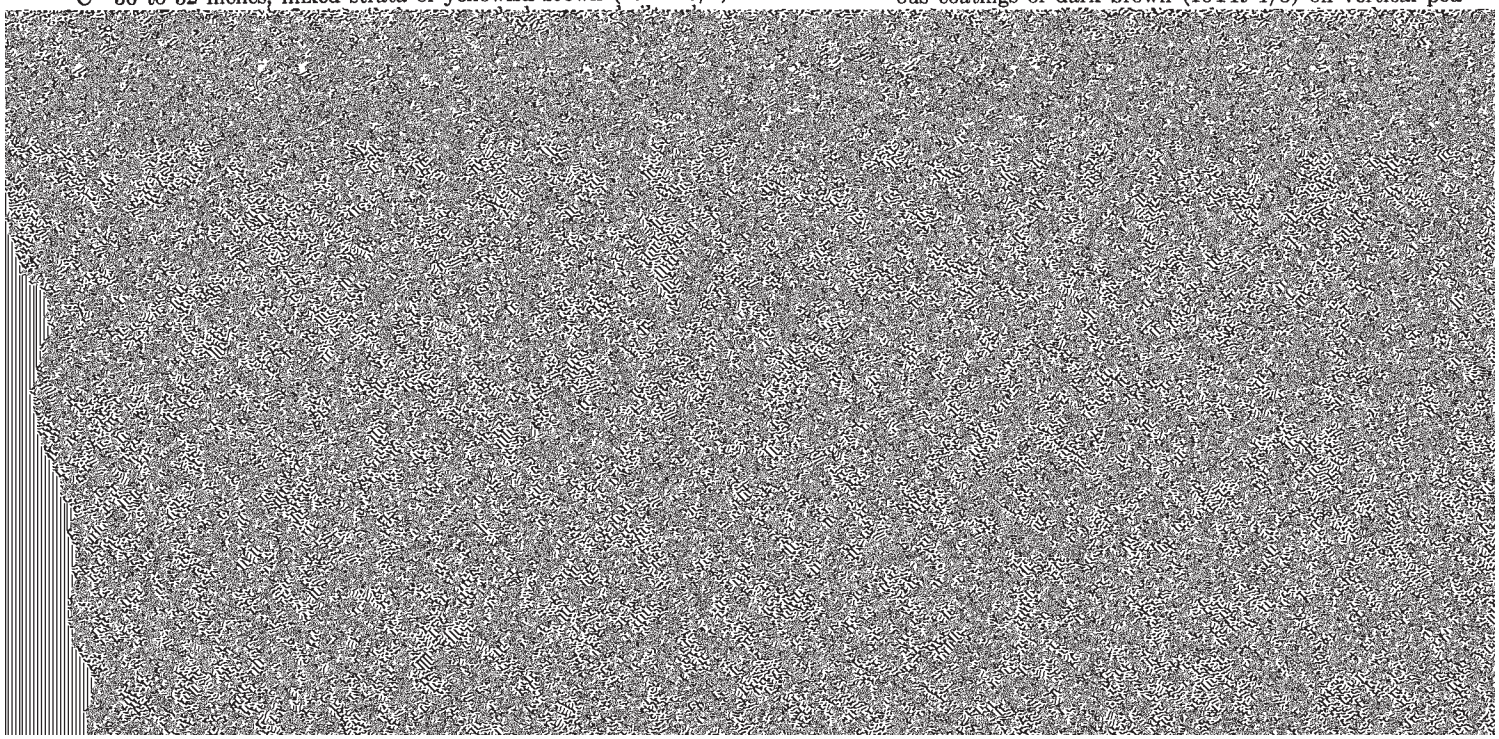
A2—6 to 11 inches, grayish-brown (10YR 5/2) silt loam; weak, thin, platy structure parting to weak, fine, granular; friable; medium acid; clear, smooth boundary.

B21t—11 to 15 inches, yellowish-brown (10YR 5/4) silty clay loam; moderate, fine, subangular blocky structure; firm; strongly acid; clear, smooth boundary.

B22t—15 to 22 inches, yellowish-brown (10YR 5/4) silty clay loam; moderate, fine and very fine, subangular blocky structure; coatings of dark brown (10YR 4/3) on peds; firm; strongly acid; clear, smooth boundary.

B23t—22 to 27 inches, yellowish-brown (10YR 5/4) silty clay loam; moderate, fine, subangular blocky structure; coatings of very dark grayish brown (10YR 3/2) on peds; firm; slightly acid; clear, wavy boundary.

IIB24t—27 to 31 inches, yellowish-brown (10YR 5/6) clay loam; weak, medium, subangular blocky structure; discontinuous coatings of dark brown (10YR 4/3) on vertical ped



county. It can be cropped intensively. Management group I-1.

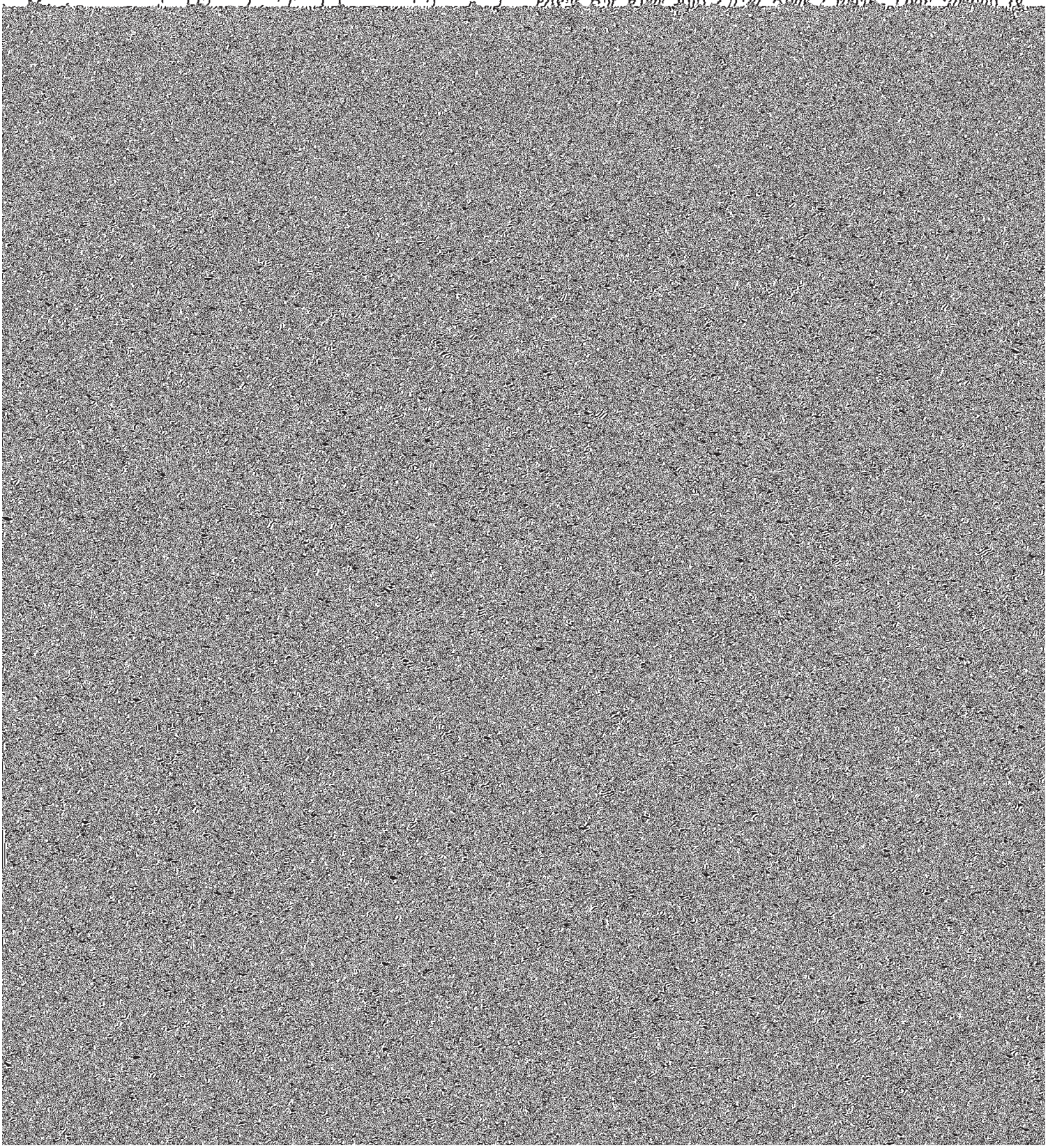
Dodge silt loam, 2 to 4 percent slopes (24B).—This soil is on ridgetops in the more rolling morainal parts of the county.

Included with this soil in mapping are small areas where

B21t—8 to 11 inches, dark-brown (10YR 4/3) silty clay loam; weak, fine, subangular blocky structure; coatings of very dark grayish brown (10YR 3/2) on vertical ped surfaces; firm; medium acid; clear, smooth boundary.

B22t—11 to 17 inches, dark-brown (10YR /3) silty clay loam; moderate, fine and very fine, subangular blocky structure; coatings of dark brown (10YR 3/3) on peds; firm; medium

Permeability is moderate, and the available water capacity is high. The organic-matter content is high. Most areas of Drummer soils are farmed intensively to corn and soybeans. They are well suited to the other commonly grown crops.



DuPage Series

The DuPage series consists of nearly level, moderately well drained soils. These soils are on bottom lands, mainly along Big Rock and Little Rock Creeks. They formed in

loam till or stratified loamy glacial outwash. The native vegetation was prairie grasses.

In a representative profile the surface layer is black silt loam about 13 inches thick. The subsoil is about 35 inches thick. In sequence from the top, it is 7 inches of dark grayish-brown silty clay loam, 21 inches of grayish-brown silty clay loam, and 7 inches of light brownish-gray silt loam. The yellowish-brown mottles that are in the subsoil indicate a fluctuating water table. The underlying material is mixed gray and yellowish-brown stratified silt loam and sandy loam. It is moderately alkaline glacial outwash.

Permeability is moderate, and the available water capacity is high. The organic-matter content is high. Elburn soils are well suited to all the commonly grown crops. Most areas are farmed intensively and are used for corn and soybeans. Some areas need additional artificial drainage if they are to be cultivated early in spring.

Representative profile of Elburn silt loam, 39 feet east of road center and 15 feet south of gatepost across road, in the NW¼NW¼SW¼NW¼ sec. 7, T. 36 N., R. 6 E.

Ap—0 to 9 inches, black (10YR 2/1) silt loam; moderate, fine, granular structure; friable; neutral; abrupt, smooth boundary.

A12—9 to 13 inches, black (10YR 2/1) silt loam; moderate, very fine to fine, granular structure; friable; neutral; clear, smooth boundary.

B1t—13 to 15 inches, dark grayish-brown (10YR 4/2) light silty clay loam; moderate, very fine, subangular blocky structure; many black iron stains on peds; firm; slightly acid; clear, smooth boundary.

B21t—15 to 20 inches, dark grayish-brown (10YR 4/2) silty clay loam; many, fine, distinct, yellowish-brown (10YR 5/4, 5/6) mottles; moderate, very fine and fine, subangular blocky structure; continuous coatings of very dark grayish brown (10YR 3/2) on peds; firm; slightly acid; clear, smooth boundary.

B22t—20 to 30 inches, grayish-brown (10YR 5/2) silty clay loam; many, fine, distinct, yellowish-brown (10YR 5/6) and light brownish-gray (10YR 6/2) mottles; weak, medium, prismatic structure parting to moderate, fine, subangular blocky; continuous coatings of dark grayish brown (10YR 4/2) on peds; firm; slightly acid; clear, smooth boundary.

B23t—30 to 41 inches, grayish-brown (10YR 5/2) silty clay loam; many, medium, distinct, yellowish-brown (10YR 5/6) and light brownish-gray (10YR 6/2) mottles; weak, medium, prismatic structure parting to moderate, fine, subangular blocky; continuous coatings of dark grayish brown (10YR 4/2) on peds; firm; neutral; clear, smooth boundary.

IIB3—41 to 48 inches, light brownish-gray (10YR 6/2) silt loam that has a noticeable content of sand; common, fine, faint, yellowish-brown (10YR 5/4) mottles; weak, medium, prismatic structure parting to weak, coarse, subangular blocky; coatings of very dark grayish brown (10YR 3/2) on vertical ped faces; friable; moderately alkaline; slight effervescence; clear, smooth boundary.

IIC—48 to 64 inches, mixed gray (5Y 5/1) and yellowish-brown (10YR 5/6) stratified silt loam and sandy loam; single grained and massive; friable; moderately alkaline; strong effervescence.

The A horizon ranges from 10 to 17 inches in thickness. It is black to very dark gray silt loam to light silty clay loam. The B horizon ranges from dark grayish brown to brown and is mottled. Below a depth of 41 inches the B horizon ranges from silty clay loam to clay loam, silt loam, and sandy clay loam. The solum ranges from 45 to more than 60 inches in thickness. The underlying material, which is stratified in places, has variable textures of sandy loam, silt loam, loam, sand, and in some places, gravel.

Elburn soils are associated with Plano and Drummer soils and are similar to Brenton soils. They are more poorly drained than

Included with this soil in mapping are small areas of Drummer silty clay loam and Plano silt loam, 0 to 2 percent slopes. Also included are small areas where the surface layer and subsoil are less than 45 inches thick.

A periodic high water table is the most serious limitation to the use of this soil. This condition can be improved by installing artificial drainage. Management group I-2.

Fox Series

The Fox series consists of nearly level to moderately sloping, well-drained soils. These soils are in the glacial outwash areas near the breaks to the Fox River and Blackberry Creek. They formed in thin layer of silt loam material and in the underlying sand and gravel. The native vegetation was mixed hardwood trees.

In a representative profile the surface layer is dark grayish-brown silt loam about 7 inches thick. The subsurface layer, about 6 inches thick, is grayish-brown and brown silt loam. In areas that have not been disturbed by plowing the surface layer is thinner and darker. The subsoil is yellowish-brown silty clay loam in the upper 12 inches and dark-brown heavy clay loam in the lower 8 inches. The underlying material is yellowish-brown, moderately alkaline sand and gravel.

Permeability is moderate in the solum and rapid in the underlying material. The available water capacity is moderate, and the organic-matter content is low. Fox soils are suited to all the commonly grown crops. Many of the larger areas are cultivated, but many areas adjacent to drainageways and steep breaks are in pasture or woodland. Increasing the organic-matter content and controlling erosion are the major concerns of management.

Representative profile of Fox silt loam, 1 to 4 percent slopes, 110 feet north of road center and 210 feet west of north-south fence, in the NE¼SE¼NE¼ sec. 36, T. 37 N., R. 6 E.

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2) silt loam; weak, very fine, granular structure; friable; mildly alkaline; abrupt, smooth boundary.

A2—7 to 13 inches, grayish-brown (10YR 5/2) silt loam that is brown (10YR 5/3) in the lower 3 inches; weak, medium, platy structure parting to weak, very fine, subangular blocky; stains of very dark gray (10YR 3/1) on peds; friable; neutral; clear, smooth boundary.

B21t—13 to 19 inches, yellowish-brown (10YR 5/4) light silty clay loam; moderate, fine and medium, subangular blocky structure; patchy stains of dark grayish brown (10YR 4/2) on peds; firm; slightly acid; clear, smooth boundary.

B22t—19 to 25 inches, yellowish-brown (10YR 5/6) silty clay loam; weak, medium, prismatic structure parting to strong, medium, subangular blocky; thin continuous coatings of dark grayish brown (10YR 4/2) on peds; firm; slightly acid; clear, smooth boundary.

IIB3t—25 to 33 inches, dark-brown (7.5YR 4/4) heavy clay loam; moderate, coarse, prismatic structure parting to strong, coarse, subangular blocky; continuous coatings of dark brown (7.5YR 3/2) on peds; firm; mildly alkaline; pebbles throughout; gradual, smooth boundary.

IIC—33 to 40 inches, yellowish-brown (10YR 5/4) sand and gravel; single grained; friable; moderately alkaline; strong effervescence.

The A horizon ranges from 7 to 14 inches in thickness. In uncultivated areas it is very dark gray to black and where mixed with

Fox soils occur on the same landscape with Dresden, Lorenzo, and Ryde soils. They have a lighter colored A horizon than Dresden

A12ca—8 to 14 inches, very dark gray (2.5Y 3/0) silty clay loam; moderate fine and medium granular structure; firm;

A1—0 to 4 inches, very dark grayish-brown (10YR 3/2) silt loam; moderate, fine, granular structure; friable; common pebbles and stones; mildly alkaline; clear, smooth boundary.
B2—4 to 14 inches, brown (10YR 4/3) gravelly silt loam; moderate, fine to medium, subangular blocky structure; thin coatings of clay on peds; friable to firm; common pebbles and stones; moderately alkaline; slight effervescence;

in the lower 25 inches. The underlying material is dark-brown loam and yellowish-brown sandy loam. It is moderately alkaline glacial drift.

Permeability is moderate, and the available water capacity is high. The organic-matter content is low. Kendall soils are suited to all the commonly grown crops. Most areas are cultivated, but many small areas are in pasture or woodland. Increasing the organic-matter content and providing drainage where needed are the major concerns of management.

Representative profile of Kendall silt loam, 440 feet west of angle in fence and 36 feet south of field fence, in the NW¼SE¼NE¼ sec. 5, T. 37 N., R. 6 E.

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2) silt loam; moderate, fine, granular structure; friable; slightly acid; abrupt, smooth boundary.

A2—7 to 12 inches, brown (10YR 5/3) silt loam; few, fine, faint, grayish-brown (10YR 5/2) mottles and common, fine, faint, yellowish-brown (10YR 5/4) mottles; weak, thin,

are the most serious limitations to the use of this soil. In many places drainage is required for good management where this soil is used for cultivated crops. Management group I-2.

Knight Series

The Knight series consists of nearly level to depressional, poorly drained soils. These soils are in the northwestern part of the county. They formed in moderately thick deposits of silt loam material and in the underlying stratified loam and sandy loam glacial drift. The native vegetation was prairie grasses that were adapted to wet areas.

In a representative profile the surface layer is black and very dark gray silt loam about 24 inches thick. The subsurface layer, about 13 inches thick, is dark-gray and gray silt loam. The upper part of the subsoil is about 20 inches of gray silty clay loam. The lower part of the subsoil, about 15 inches thick, is dark-gray clay loam. The underlying ma-

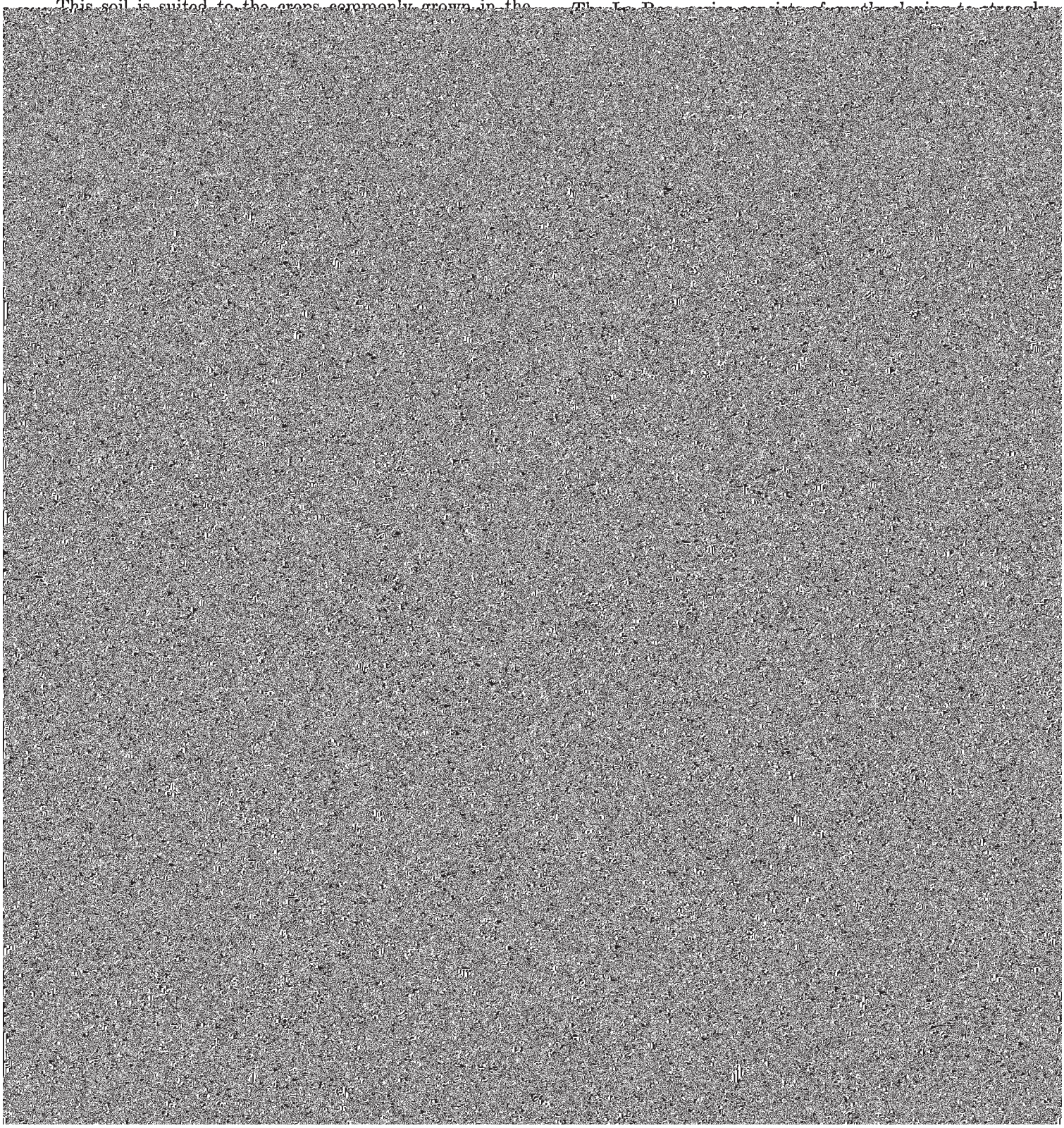
Knight silt loam (0 to 2 percent slopes) (191).—This soil is in depressions that are in areas where the topography is relatively flat.

Included with this soil in mapping are small areas where the surface layer is thinner than is typical of Knight soil. Also included are small areas of Thorp silt loam.

This soil is suited to the crops commonly grown in the

This soil is better suited to trees or pasture than to other uses, but it can be used for small grains. Management group IIIs-1.

La Rose Series



Erosion control practices that are suited to the topography reduce soil and water losses. Management group IIe-1.

La Rose silt loam, 4 to 7 percent slopes, eroded (60C2).—This soil is on somewhat rounded rises and the sides of ridges in the morainal parts of the county. It has the profile described as representative of the series. In most areas plowing has mixed subsoil material into the surface layer.

Included with this soil in mapping are small areas of Saybrook silt loam, 4 to 7 percent slopes, eroded. Also included are small severely eroded areas.

This soil is suited to the crops commonly grown in the county. Erosion is a severe hazard if the soil is cropped intensively. Erosion control practices that are suited to the topography reduce soil and water losses. Management group IIe-1.

La Rose soils, 4 to 7 percent slopes, severely eroded (60C3).—These soils are on somewhat rounded rises and

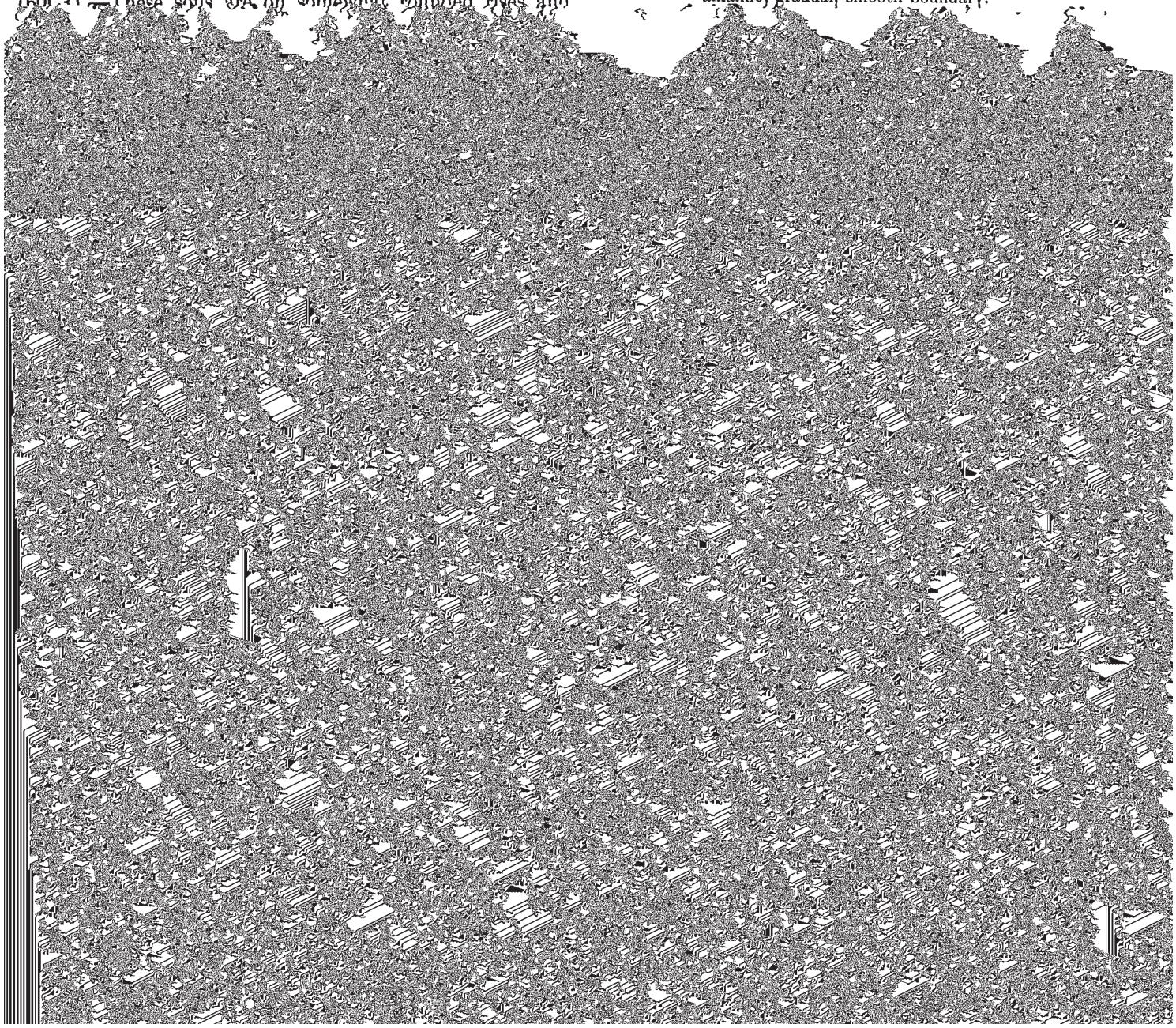
road center and 27 feet east of center of sec. 4, T. 36 N., R. 6 E.

Oa1—0 to 10 inches, black (N 2/0) broken-faced and rubbed, sapric material; about 5 percent fiber, very little when rubbed; weak, medium, subangular blocky structure; common snail shells; strongly alkaline; clear, smooth boundary.

Oa2—10 to 24 inches, black (N 2/0) broken-faced and rubbed, sapric material; about 15 percent fiber, less than 5 percent rubbed; very weak, coarse, subangular blocky structure; common snail shells; strongly alkaline; diffuse, smooth boundary.

Oa3—24 to 68 inches, black (N 2/0) broken-faced and rubbed, sapric material; about 15 percent fiber in upper part and 20 percent in lower part; very weak, coarse, subangular blocky structure and massive; common snail shells; strongly alkaline; gradual, smooth boundary.

Oe1—68 to 82 inches, black (N 2/0) and dark-brown (7.5YR 3/2) broken-faced and black (N 2/0) rubbed, hemic material; about 50 percent fiber; massive; few snail shells; mildly alkaline; gradual, smooth boundary.



soils are farmed intensively and used for corn and soybeans. They are also well suited to the other commonly grown crops. Some areas need additional artificial drainage if they are to be cultivated early in spring.

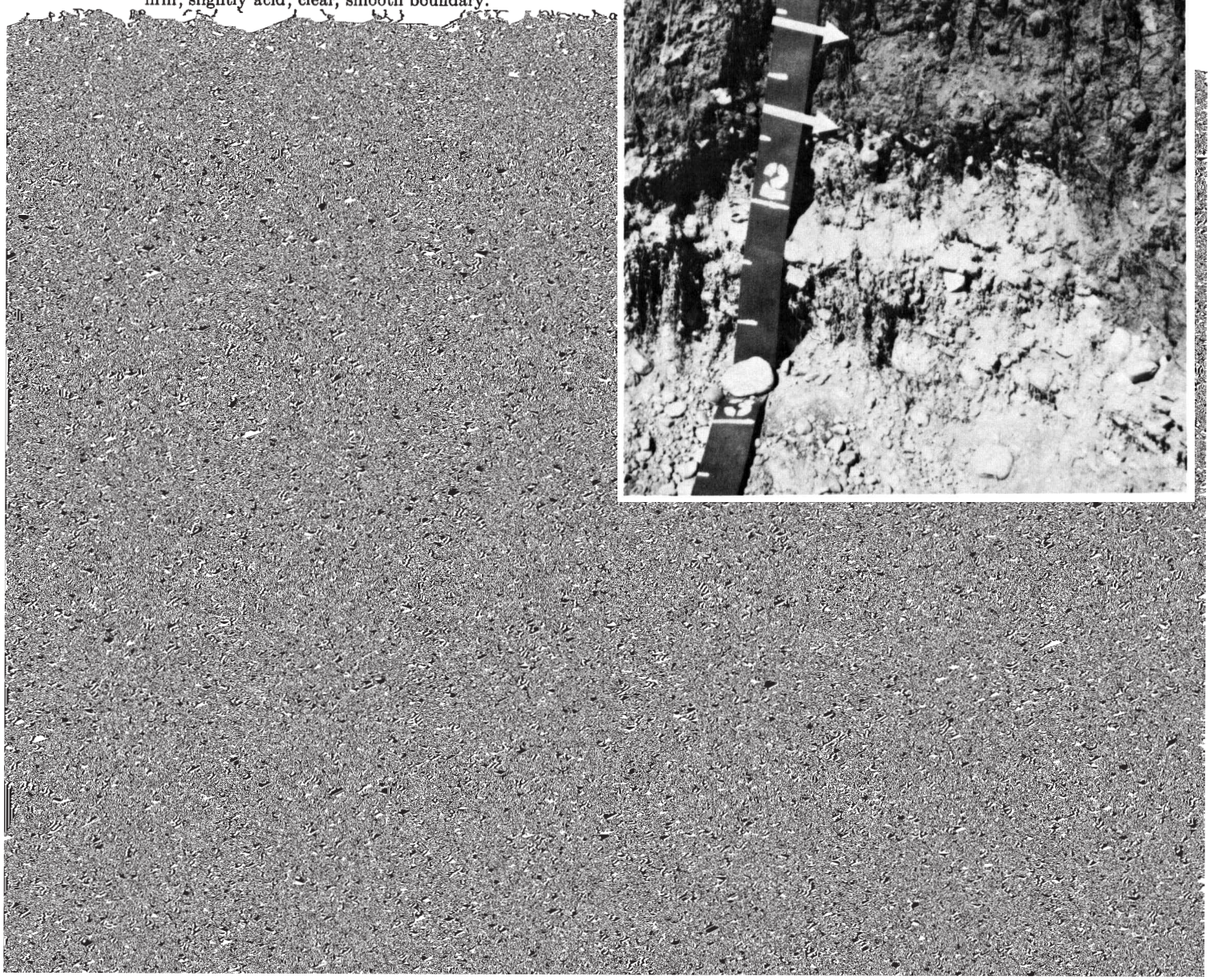
Representative profile of Lisbon silt loam, 102 feet south of road center and 202 feet west of blacktop center line, in the NE¼NE¼NE¼NE¼ sec. 19, T. 36 N., R. 8 E.

Ap—0 to 9 inches, black (10YR 2/1) silt loam; moderate, fine, granular structure; friable; neutral; abrupt, smooth boundary.

A12—9 to 14 inches, very dark gray (10YR 3/1) heavy silt loam; moderate, fine and medium, granular structure; slightly acid; clear, smooth boundary.

B21t—14 to 20 inches, dark grayish-brown (10YR 4/2) silty clay loam; common, fine, faint, yellowish-brown (10YR 5/4) mottles; moderate, very fine, subangular blocky structure; coatings of very dark gray (10YR 3/1) on ped surfaces; firm; medium acid; clear, smooth boundary.

B22t—20 to 28 inches, grayish-brown (10YR 5/2) silty clay loam; many, medium, faint, yellowish-brown (10YR 5/4) mottles; moderate, fine, subangular blocky structure; thin coatings of very dark gray (10YR 3/1) on ped surfaces; firm; slightly acid; clear, smooth boundary.



AB—7 to 11 inches, very dark grayish-brown (10YR 3/2) gravelly sandy loam; weak, medium, subangular blocky structure; friable; neutral; clear, smooth boundary.

B2t—11 to 16 inches, dark yellowish-brown (10YR 4/4) gravelly loam; weak, medium and coarse, subangular blocky structure; friable; mildly alkaline; clear, smooth boundary.

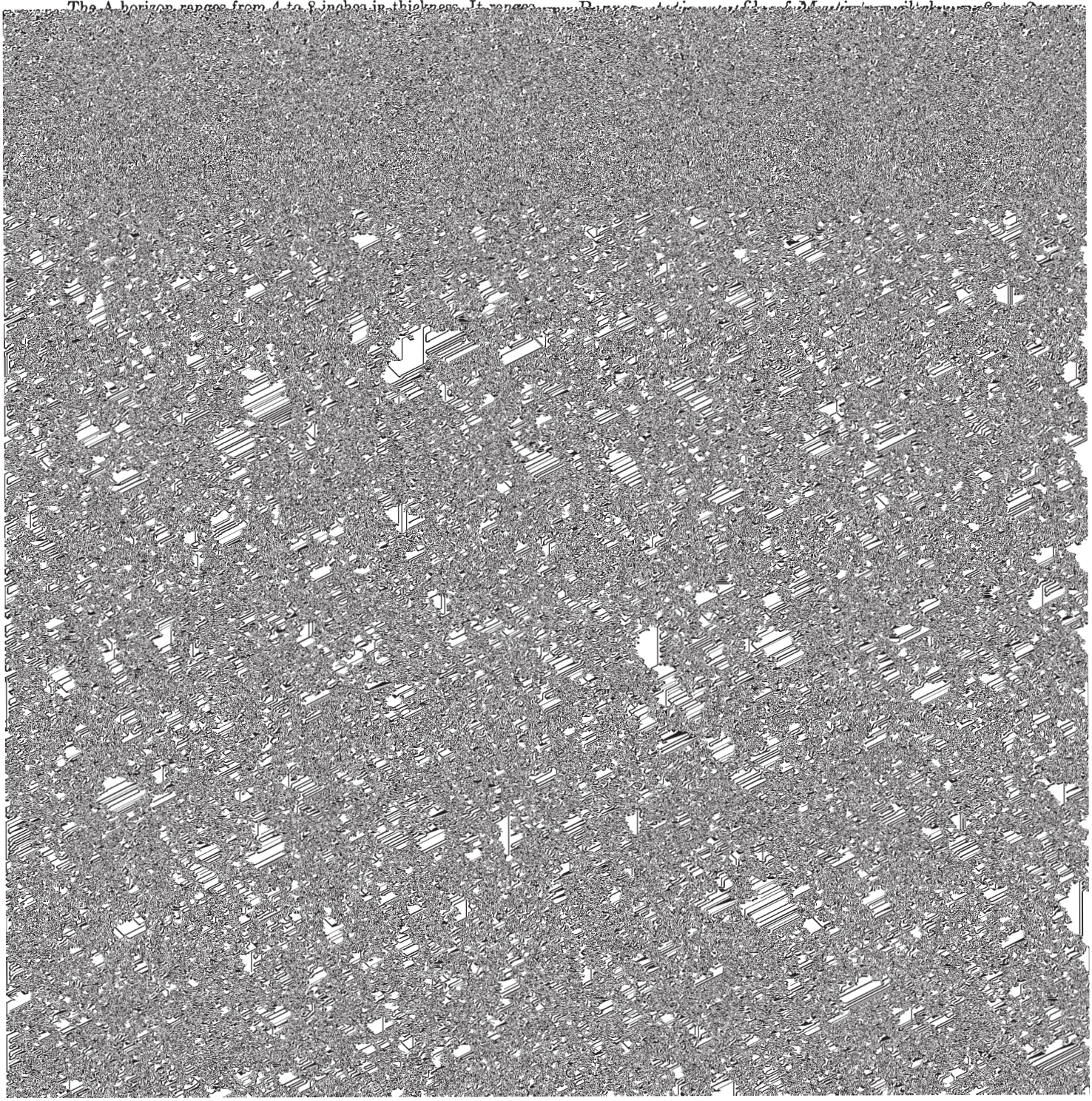
B3—16 to 19 inches, dark yellowish-brown (10YR 4/4) sandy loam to loamy gravel; weak, medium and coarse, subangular blocky structure; friable; moderately alkaline; slight effervescence; clear, wavy boundary.

C—19 to 50 inches, yellowish-brown (10YR 5/4) loamy gravel; single grained; moderately alkaline; strong effervescence.

The A horizon ranges from 4 to 8 inches in thickness. It ranges [illegible]

silty clay loam. Yellowish-brown mottles occur in the middle part of the subsoil. The underlying material has variable colors and is stratified sandy loam, silty clay, and some gravel.

Permeability is moderately slow, and the available water capacity and organic-matter content are high. Most areas of Martinton soils are farmed intensively and used for corn and soybeans. They are well suited to all the commonly grown crops. Some areas need additional drainage if they are to be cultivated early in spring.



Milford silty clay loam. Also included are small areas of Mundelein silt loam and small areas of soils that have a

blocky; coatings of dark gray (10YR 4/1) on vertical ped surfaces; firm; mildly alkaline; abrupt, wavy boundary.

C—42 to 64 inches, yellowish brown (10YR 5/6), mixed with gray

sandy loam, sand, and loamy gravel. It is moderately alkaline glacial outwash.

Permeability is moderate, and the available water capacity is high. The organic-matter content is moderate. Most areas of Millbrook soils are farmed intensively to corn and soybeans. The soils are well suited to the other commonly grown crops. Some areas need additional artificial drainage if they are to be cultivated early in spring.

Representative profile of Millbrook silt loam, 112 feet east and 1,560 feet north of the southwest corner of the NW¼ sec. 16, T. 37 N., R. 7 E.

Ap—0 to 9 inches, very dark gray (10YR 3/1) silt loam; weak, very fine, granular structure; friable; neutral; abrupt, smooth boundary.

A2—9 to 13 inches, grayish-brown (10YR 5/2) silt loam that has very dark gray (10YR 3/1) stains; weak, medium, platy structure parting to moderate, fine, granular; friable; medium acid; clear, smooth boundary.

B21t—13 to 19 inches, grayish-brown (10YR 5/2) silty clay loam; few, fine, distinct, yellowish-brown (10YR 5/6) mottles; moderate, very fine, subangular blocky structure; continuous coatings of very dark gray (10YR 3/1) on peds; firm; medium acid; clear, smooth boundary.

B22t—19 to 29 inches, brown (10YR 5/3) silty clay loam; many, fine, distinct, yellowish-brown (10YR 5/6) mottles; moderate, medium, prismatic structure parting to moderate,

Millington Series

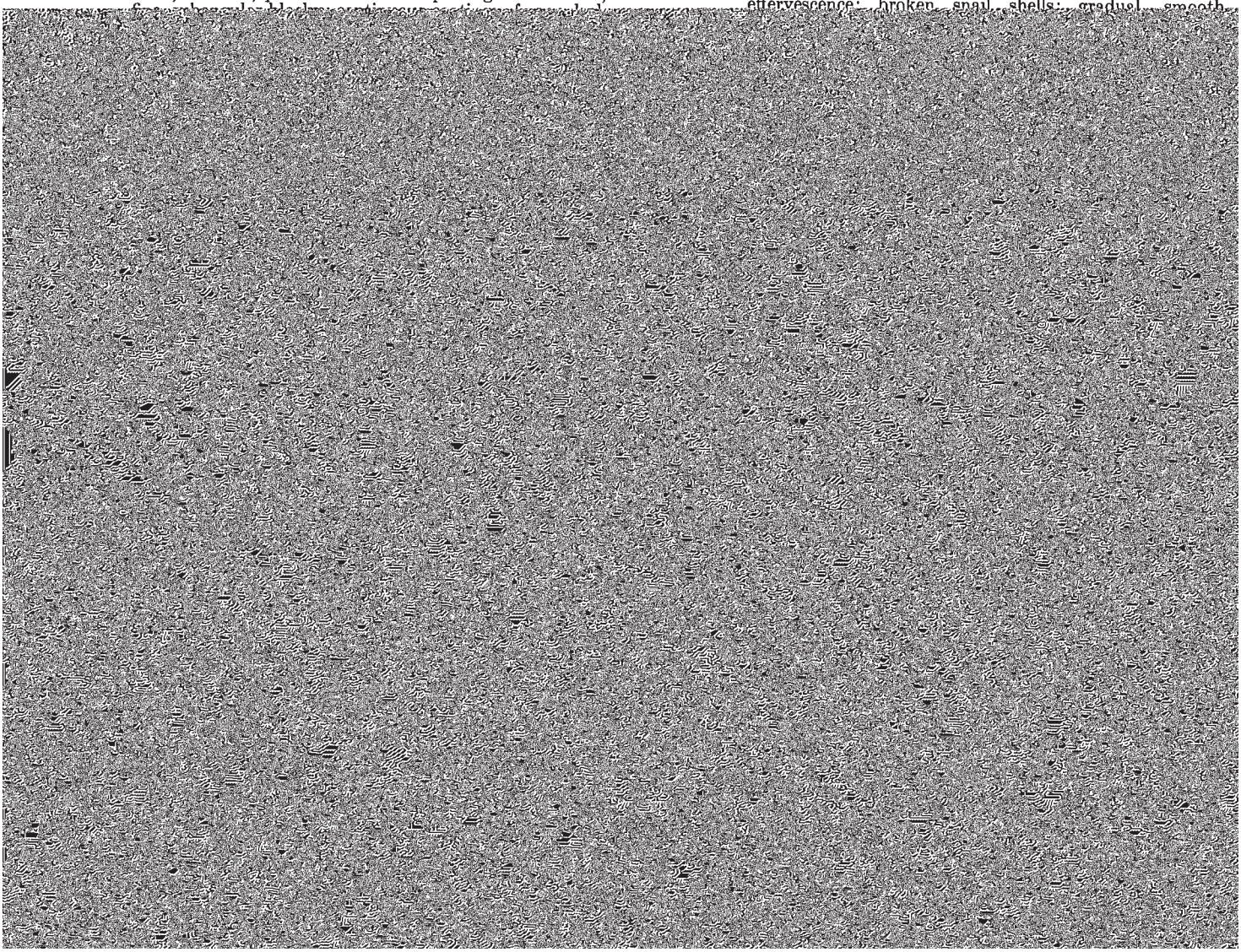
The Millington series consists of nearly level, poorly drained soils on bottom lands along the Fox River. These soils formed in water-laid silt loam to loam sediments.

In a representative profile the surface layer is black, calcareous silt loam about 12 inches thick. The upper part of the subsoil, about 14 inches thick, is very dark gray, calcareous silt loam. The lower part, about 25 inches thick, is grayish-brown, calcareous heavy silt loam. The underlying material is mixed light-gray and greenish-gray marly silt loam.

Permeability is moderate, and the available water capacity and organic-matter content are high. Where Millington soils are practical to cultivate, they are suited to corn and soybeans. Because of frequent flooding, many areas are in pasture or woodland. The hazard of overflow and a seasonal high water table are the major concerns of management.

Representative profile of Millington silt loam, 600 feet north and 580 feet west of the southeast corner of sec. 34, T. 37 N., R. 6 E.

A1—0 to 12 inches, black (10YR 2/1) silt loam; moderate, medium, granular structure; friable; moderately alkaline; strong effervescence; broken snail shells; gradual, smooth

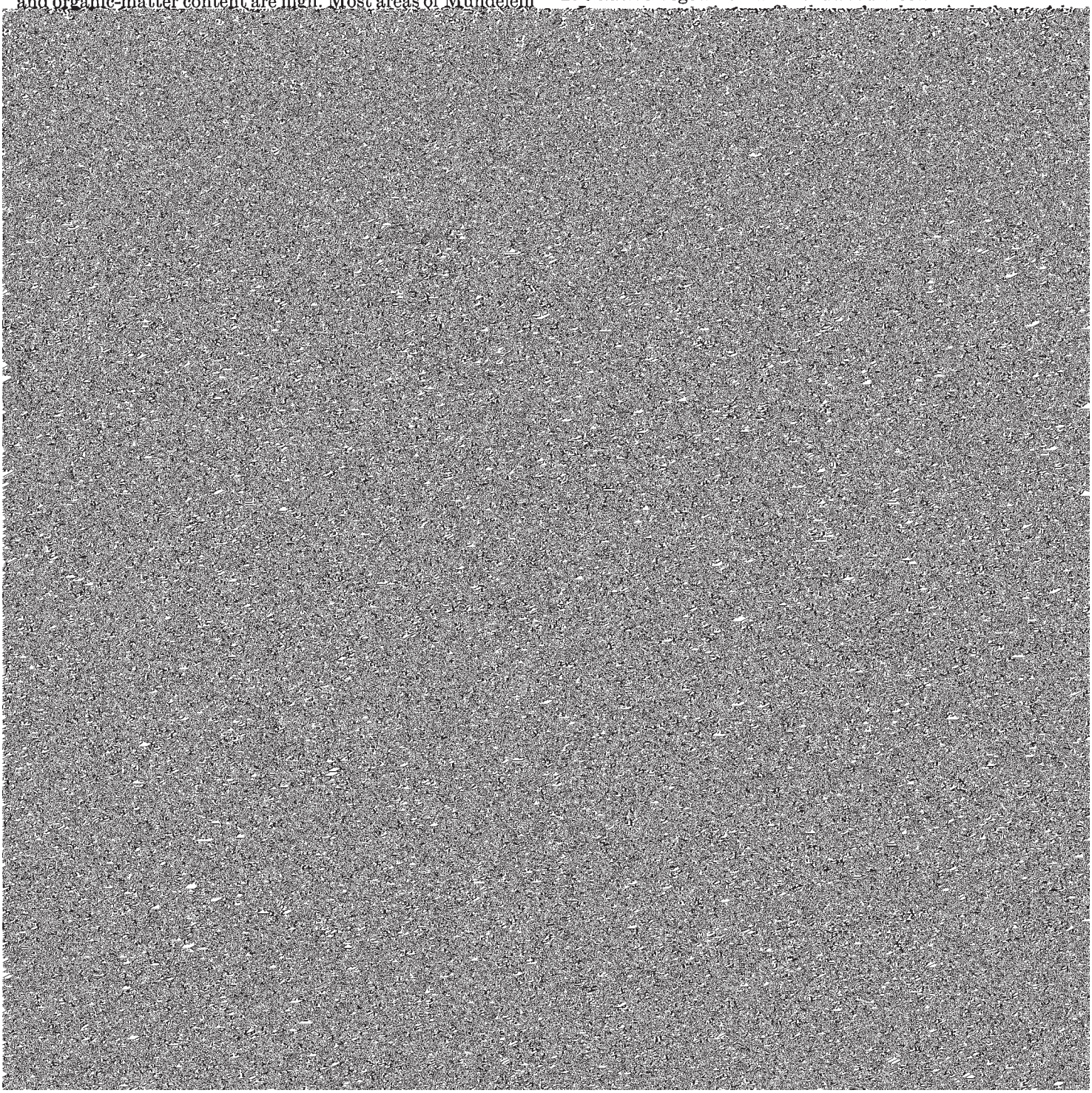


In a representative profile the surface layer is black silt loam about 11 inches thick. The subsoil is about 30 inches thick. In sequence from the top, the upper 5 inches is very dark grayish-brown silty clay loam, the next 9 inches is dark grayish-brown silty clay loam, the next 9 inches is grayish-brown silty clay loam, and the lower 7 inches is mixed grayish-brown silt loam and sandy loam. The underlying material is stratified clay loam and silt loam that contains thin strata of sand. It is moderately alkaline glacial outwash.

Permeability is moderate, and the available water capacity and organic-matter content are high. Most areas of Mundelein artificial drainage is needed for good results. Management group I-2.

Nappanee Series

The Nappanee series consists of nearly level to gently sloping, somewhat poorly drained soils. These soils are mainly along Aux Sable Creek and in a small area east of Yorkville. They formed in silty clay to clay glacial lakebed sediments. The native vegetation was hardwood trees.



In Kendall County the solum of the Nappanee soils is thicker than is within the defined range for the series. This difference does not alter the usefulness and behavior of these soils.

Nappanee soils are associated with Swygert, Bryce, and Del Rey

B21g—26 to 34 inches, dark-gray (5Y 4/1) and yellowish-brown (10YR 5/6) heavy silty clay loam; moderate, medium, prismatic structure parting to strong, fine and medium, subangular blocky; coatings of very dark gray (2.5Y 3/1)

and moderately sloping soils from erosion are the major concerns of management.

Representative profile of Plano silt loam, 0 to 2 percent slopes, 50 feet north of road center and 20 feet east of fence, in the SW¼SE¼SW¼SE¼ sec. 2, T. 37 N., R. 6 E.

Ap—0 to 7 inches, very dark brown (10YR 2/2) silt loam; moderate, fine and medium, granular structure; friable; slightly acid; abrupt, smooth boundary.

A12—7 to 14 inches, very dark brown (10YR 2/2) silt loam; weak, fine, granular structure; friable; medium acid; clear, smooth boundary.

B1—14 to 19 inches, very dark grayish-brown (10YR 3/2) heavy silt loam; moderate, fine, subangular blocky structure; medium acid; clear, smooth boundary.

B21t—19 to 29 inches, brown (10YR 4/3) silty clay loam; moderate, medium, subangular blocky structure; coatings of dark brown (7.5YR 4/4) on peds; firm; medium acid; clear, wavy boundary.

B22t—29 to 39 inches, dark yellowish-brown (10YR 4/4) silty clay loam; moderate, medium and coarse, subangular blocky structure; coatings of dark brown (7.5YR 4/4) on peds; firm; medium acid; abrupt, wavy boundary.

B31—39 to 52 inches, yellowish-brown (10YR 5/4) heavy silt loam; weak, coarse, subangular blocky structure; few discontinuous coatings of dark brown (7.5YR 4/4) on peds; friable; medium acid; clear, smooth boundary.

IIB32—52 to 62 inches, brown (10YR 5/3) loam; weak, coarse, subangular blocky structure; coatings of dark yellowish brown (10YR 4/4) on vertical ped surfaces and in root channels; friable; slightly acid; abrupt, smooth boundary.

IIB33—62 to 66 inches, dark-brown to brown (7.5YR 4/4) gravelly sandy loam; weak, coarse, subangular blocky structure; friable; mildly alkaline; abrupt, smooth boundary.

IIC—66 to 80 inches, brown (10YR 5/3) sandy loam; massive; many small stones or fine pebbles; moderately alkaline; strong effervescence.

The A horizon ranges from black to very dark grayish brown in color and from 10 to 16 inches in thickness. The upper part of the

Plano silt loam, 4 to 7 percent slopes, eroded (199C2).—This soil has a profile similar to the one described as representative of the series, but the surface layer and subsoil are thinner. In most areas plowing has mixed subsoil material into the surface.

Included with this soil in mapping are small areas where the underlying calcareous sandy loam drift is at a depth of less than 45 inches.

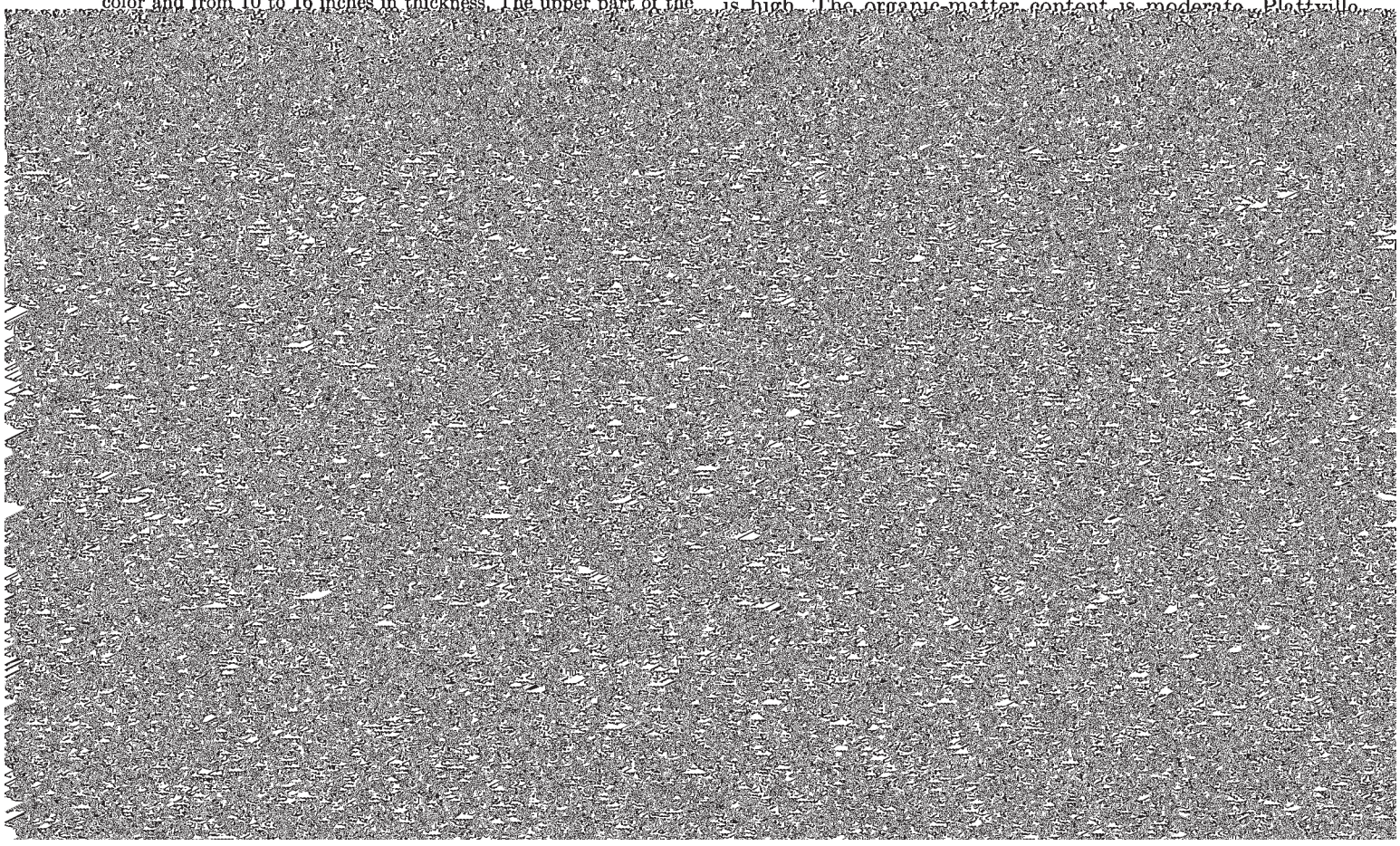
This soil is suited to the crops commonly grown in the county. Erosion is a hazard where the soil is cropped intensively. Erosion control practices that are suited to the topography reduce soil and water losses. Management group IIe-1.

Plattville Series

The Plattville series consists of nearly level to **gently** sloping, moderately well drained to well drained soils. These soils are in a somewhat elevated area in the south-central part of the county. They formed in moderately thick deposits of silt loam and loamy material that is underlain by limestone bedrock at a depth of 40 to 55 inches. The native vegetation was prairie grasses.

In a representative profile the surface layer is black and very dark brown silt loam about 12 inches thick. The subsoil, about 32 inches thick, is brown and dark-brown silty clay loam in the upper 9 inches, dark yellowish-brown silty clay loam and clay loam in the middle, and brown sandy clay loam in the lower 5 inches. The underlying material is unweathered limestone bedrock.

Permeability is moderate, and the available water capacity is high. The organic-matter content is moderate. Plattville



The A horizon ranges from 10 to 16 inches in thickness and from black to very dark grayish brown in color. The B horizon ranges from 20 to 42 inches in thickness. In most places the B horizon is silty clay loam in the upper part and ranges to clay loam, sandy clay loam, or loam in the lower part. The solum ranges from 40 to 55 inches in thickness. The underlying limestone bedrock in most areas is flat bedded and unweathered and has only a few fractures.

Plattville soils are near Ripon soils. They are deeper over limestone bedrock than Ripon soils.

Plattville silt loam, 0 to 2 percent slopes (240A).—This soil is in irregularly shaped areas that are at a higher elevation than the surrounding soils. It has the profile described as representative of the series.

Included with this soil in mapping are small areas of Ripon silt loam, 1 to 4 percent slopes, and Brenton silt loam, bedrock substratum. Also included are small areas of soils that have a finer textured subsoil than is typical of Plattville soils.

This soil is suited to the crops commonly grown in the county. If well managed, this soil can be cropped intensively. Management group I-1.

Plattville silt loam, 2 to 4 percent slopes (240B).—This soil is associated with Plattville silt loam, 0 to 2 percent slopes. It has a profile similar to the one described as representative of the series, but it tends have a thinner surface layer and subsoil.

Included with this soil in mapping are small areas of the nearly level Plattville soil and Ripon silt loam, 1 to 4 percent slopes. Also included are small areas where the subsoil is finer textured.

This soil is suited to the crops commonly grown in the county. Erosion is a hazard. Adapted erosion control practices should be used to control soil losses. Management group IIe-1.

Proctor Series

The Proctor series consists of nearly level to moderately sloping, moderately well drained and well drained soils. These soils are on the higher parts of the glacial outwash areas of the county. They formed in thin deposits of silt loam material and in the underlying stratified loam, silt loam, sandy loam, and sand glacial outwash. The native vegetation was prairie grasses.

In a representative profile the surface layer is black to very dark grayish-brown silt loam about 14 inches thick. The subsoil is dark-brown to dark yellowish-brown silty

B21t—14 to 21 inches, dark-brown (10YR 3/3) light silty clay loam; moderate, very fine, subangular blocky structure; continuous stains of very dark grayish brown (10YR 3/2) on peds; firm; medium acid; clear, smooth boundary.

B22t—21 to 31 inches, dark-brown (10YR 4/3) silty clay loam; weak, medium, prismatic structure parting to moderate, very fine and fine, subangular blocky; firm; medium acid; abrupt, smooth boundary.

IIB23t—31 to 37 inches, dark-brown (10YR 4/3) silty clay loam that has a noticeable content of sand and many small pebbles; few, fine, faint, yellowish-brown (10YR 5/6) mottles and few, fine, faint, dark grayish-brown (10YR 4/2) mottles; weak, medium, prismatic structure parting to moderate, medium, subangular blocky; coatings of very dark grayish brown (10YR 3/2) on peds; firm; medium acid; gradual, smooth boundary.

IIB3t—37 to 53 inches, dark yellowish-brown (10YR 4/4) clay loam; common, fine, faint, yellowish-brown (10YR 5/6) mottles; weak, coarse, prismatic structure parting to moderate, medium, subangular blocky; thin coatings of very dark grayish brown (10YR 3/2) on peds; firm; slightly acid; gradual, wavy boundary.

IIC—53 to 60 inches, yellowish-brown (10YR 5/4) sandy loam; structureless; single grained; loose; moderately alkaline; strong effervescence.

The A horizon ranges from 10 to 15 inches in thickness and from black to dark brown in color. The B2 horizon ranges from silty clay loam to clay loam, and the B3 horizon ranges from silty clay loam that has a gritty feel and clay loam to loam. The solum ranges from 38 to 55 inches in thickness. The C horizon is stratified silt loam, sandy loam, sand, and in some places gravel.

Proctor soils are associated with Brenton and Drummer soils and are similar to Barrington soils. They are better drained than Brenton and Drummer soils and contain less clay in the A horizon than Drummer soils. Proctor soils have carbonates at a greater depth than Barrington soils.

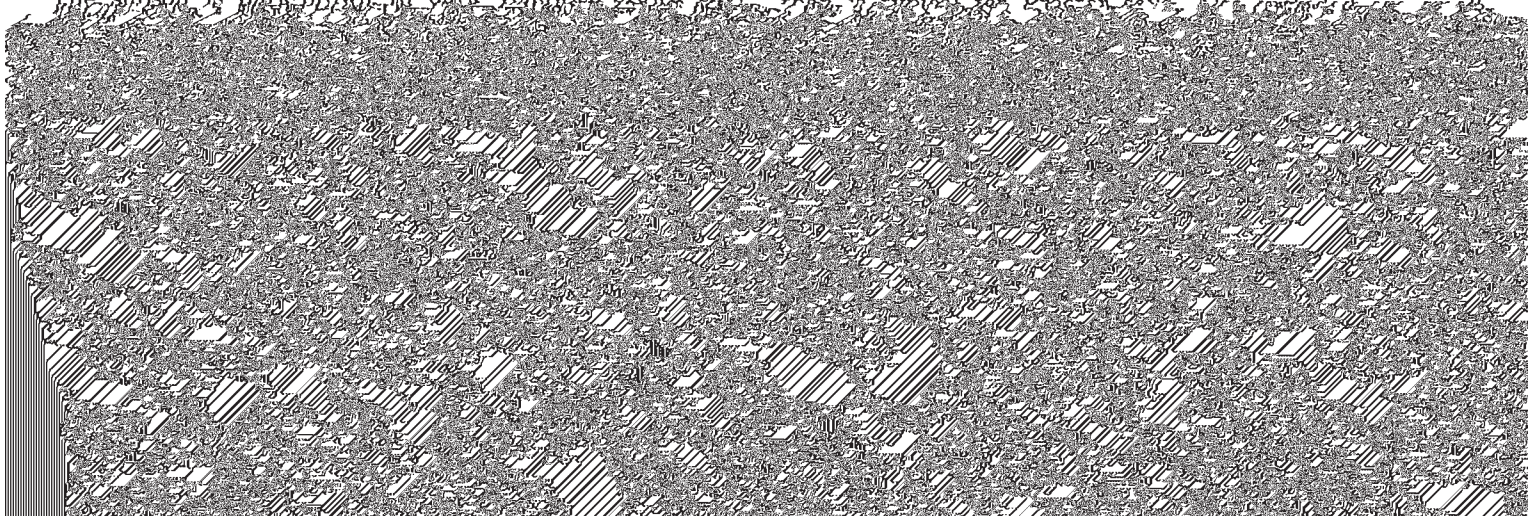
Proctor silt loam, 0 to 2 percent slopes (148A).—This soil is in the highest areas, generally in level outwash areas. It has the profile described as representative of the series.

Included with this soil in mapping are small areas of Brenton silt loam and areas where the subsoil is finer textured than is typical for Proctor soils. Also included are small areas where calcareous glacial till is at a depth of 40 to 60 inches.

This soil is suited to the crops commonly grown in the county. It can be cropped intensively. Management group I-1.

Proctor silt loam, 2 to 4 percent slopes (148B).—This soil commonly is on small rises that are surrounded by other nearly level soils. It has a profile similar to the one described as representative of the series, but the surface layer is thinner.

Included with this soil in mapping are small areas of Brenton silt loam and areas where the subsoil is finer textured



This soil is suited to the crops commonly grown in the county. Erosion is a hazard where the soil is cropped intensively. Erosion control practices that are suited to the topography reduce soil and water losses. Management group IIe-1.

Ripon Series

The Ripon series consists of nearly level to moderately sloping, well-drained soils. These soils are mainly in the south-central part of the county but to a lesser extent they are around Oswego and in the Fox River Valley. They formed in thin deposits of silt loam and loamy material. Bedrock is at a depth of 20 to 40 inches. The native vegetation was prairie grasses.

In a representative profile the surface layer is very dark gray and very dark grayish-brown silt loam about 11 inches thick. The subsoil is about 18 inches thick. It is dark-brown and dark yellowish-brown silty clay loam in the upper 14 inches and dark-brown clay loam in the lower 4 inches. The underlying material is unweathered limestone bedrock.

Permeability is moderate, and the available water capacity is low. The organic-matter content is moderate. Ripon soils have only limited suitability for corn and soybeans because of the limited root zone. Controlling erosion and maintaining the organic-matter content are the major concerns of management.

Representative profile of Ripon silt loam, 1 to 4 percent slopes, 70 feet southwest of road center and 185 feet southwest of fireplug near lane, in the NE¼SE¼ sec. 17, T. 37 N., R. 8 E.

Ap—0 to 8 inches, very dark gray (10YR 3/1) silt loam; moderate, very fine, granular structure; friable; slightly acid; abrupt, smooth boundary.

A3—8 to 11 inches, very dark grayish-brown (10YR 3/2) silt loam; moderate, fine, granular structure; friable; neutral; clear, smooth boundary.

B21t—11 to 17 inches, dark-brown (10YR 4/3) silty clay loam; moderate, fine, subangular blocky structure; continuous coatings of very dark grayish brown (10YR 3/2) on peds; firm; medium acid; clear, smooth boundary.

B22t—17 to 25 inches, dark yellowish-brown (10YR 4/4) silty clay loam; moderate, medium, subangular blocky structure; thin, continuous coatings of very dark grayish brown (10YR 3/2) on peds; firm; strongly acid; clear, smooth boundary.

B23t—25 to 29 inches, dark-brown (7.5YR 4/4) clay loam; weak, coarse and medium, subangular blocky structure; continuous coatings of very dark grayish brown (10YR 3/2) on peds; firm; slightly acid; abrupt, smooth boundary.

IIR—29 inches, limestone bedrock; dolomitic; partly fractured; very little weathering.

crops is limited by the low available water capacity. Management group IIs-1.

Ripon silt loam, 4 to 7 percent slopes, eroded (324C2).—This soil is associated with Ripon and Plattville soils. It has a profile similar to the one described as representative of the series, but the surface layer and subsoil are somewhat thinner.

Included with this soil in mapping are small areas where the surface layer and subsoil are thinner than is typical of Ripon soils and small areas of soils that have slopes of more than 7 percent.

This soil is suited to small grain and meadow but only to an occasional crop of corn or soybeans. Most areas are used for crops or pasture. If the soil is farmed intensively, severe erosion is the major concern of management. Suitable erosion control practices are a necessary part of good management. Management group IIIs-1.

Rush Series

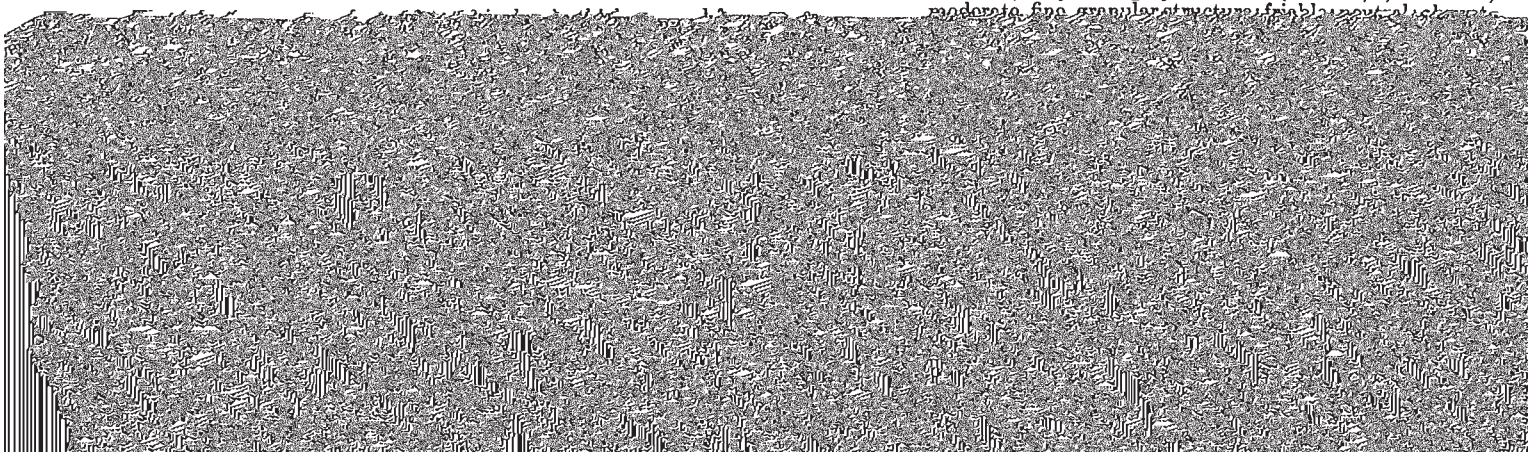
The Rush series consists of nearly level to gently sloping, well-drained soils. These soils are in somewhat narrow strips on the broad glacial outwash plain. The areas are parallel to the major stream channels and the Fox River. The soils formed in thin deposits of silt loam material and in the underlying stratified loamy, sandy, and gravelly material. The native vegetation was mixed hardwood trees.

In a representative profile the surface layer is very dark grayish-brown silt loam about 4 inches thick. The subsurface layer, about 9 inches thick, is dark grayish-brown silt loam. In cultivated areas the surface layer and the upper part of the subsurface layer are mixed. The subsoil is about 32 inches thick. The upper part is brown and dark yellowish-brown silty clay loam, and the lower part is dark yellowish-brown clay loam and brown gravelly clay loam. The underlying material is moderately alkaline, mixed yellowish-brown and pale-brown sand and gravel.

Permeability is moderate, and the available water capacity is high. The organic-matter content is low. Rush soils are suited to all the commonly grown crops. Many areas are cultivated, and many areas that are adjacent to the drainageways and steeper soils are in pasture or woodland. Increasing the organic-matter content and protecting the moderately sloping soils from erosion are the major concerns of management.

Representative profile of Rush silt loam, 0 to 2 percent slopes, 45 feet north and 35 feet east of the center of the NW¼ sec. 15, T. 36 N., R. 6 E.

A1—0 to 4 inches, very dark grayish-brown (10YR 3/2) silt loam; moderate fine granular structure; friable; neutral;

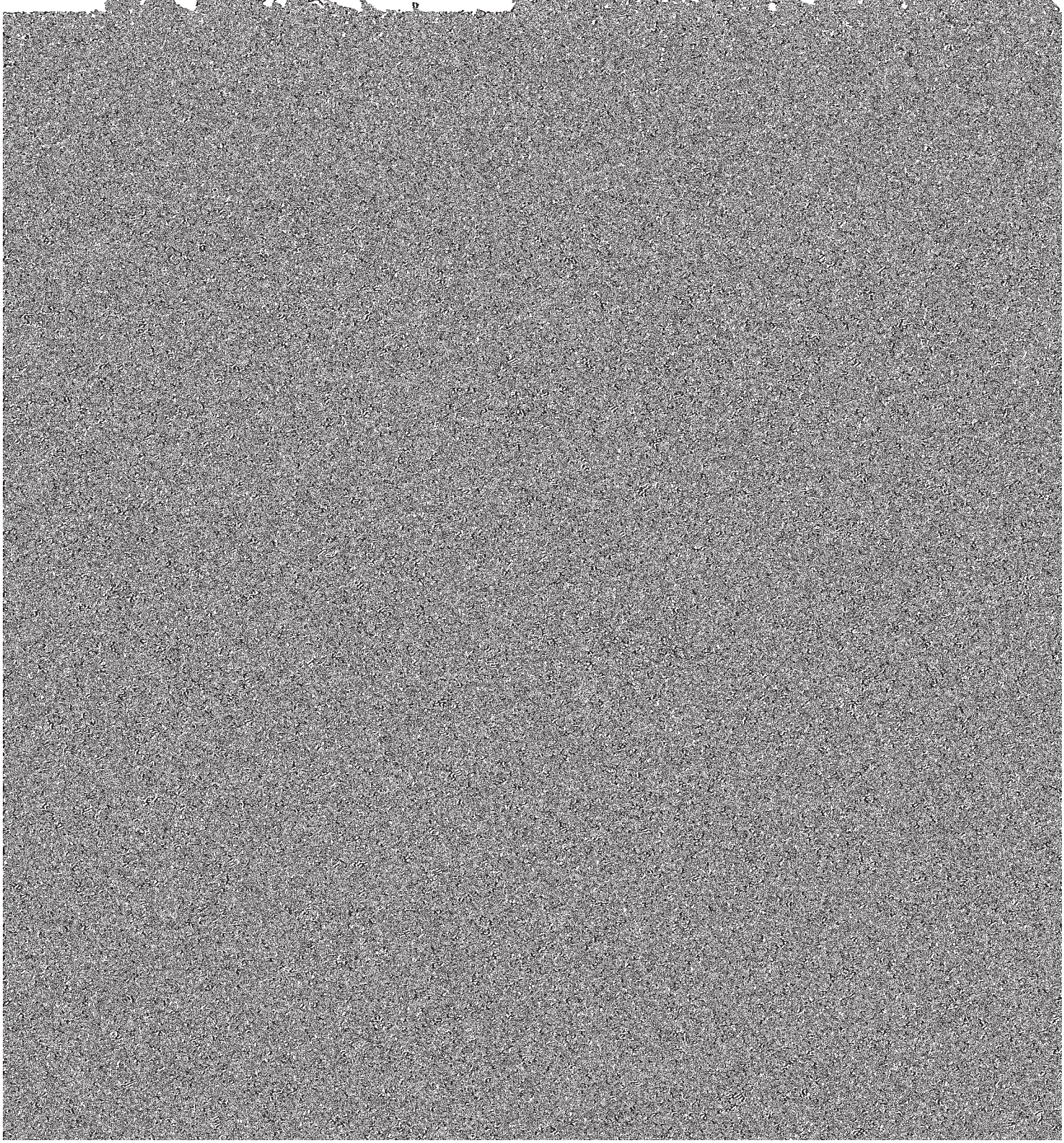


of dark yellowish brown (10YR 3/4) on peds; firm; medium acid; clear, smooth boundary.

IIB24t—35 to 39 inches, dark yellowish-brown (10YR 3/4) clay loam; moderate, coarse, prismatic structure parting to moderate, medium, subangular blocky; continuous coatings of dark grayish brown (10YR 4/2) on peds; firm; medium acid; clear, wavy boundary.

clay loam in the lower 17 inches. The underlying material is yellowish-brown sandy loam. It is moderately alkaline glacial drift.

Permeability is moderate, and the available water capacity is high. The organic-matter content is low. St. Charles soils are suited to all the commonly grown crops. Most crops



county. It can be cropped intensively. Management group I-1.

St. Charles silt loam, 2 to 4 percent slopes (243B).—This soil is on broad ridges along and between the major drainageways.

Included with this soil in mapping are small areas of Batavia silt loam, 0 to 2 percent slopes. Also included are small areas where the lower part of the subsoil is mottled and small areas that have a thinner surface layer and subsoil than are typical for St. Charles soils.

Permeability is moderate, and the available water capacity is high. The organic-matter content is moderate. Saybrook soils are well suited to all the commonly grown crops. Increasing the organic-matter content and protecting the gently sloping and moderately sloping soils from erosion are the major concerns of management.

Representative profile of Saybrook silt loam, 2 to 4 percent slopes, 276 feet south of east-west fence and 90 feet east of north-south fence, in the SW¼NE¼NE¼NE¼ sec. 25, T. 36 N., R. 6 E.

Ap—0 to 8 inches, very dark brown (10YR 2/2) silt loam; weak, medium, granular structure; friable; slightly acid; abrupt, smooth boundary.

A12—8 to 11 inches, very dark grayish-brown (10YR 3/2) silt loam; weak, fine and medium, granular structure; friable, slightly acid; clear, smooth boundary.

B21t—11 to 19 inches, brown (10YR 4/3) silty clay loam; moderate, very fine, subangular blocky structure; firm; slightly acid; clear, smooth boundary.

B22t—19 to 28 inches, yellowish-brown (10YR 5/4) silty clay loam; moderate, fine and medium, subangular blocky structure that has coatings of dark yellowish brown (10YR 4/4); firm; medium acid; clear, smooth boundary.

IIB23t—28 to 37 inches, brown (10YR 5/3) silty clay loam that has a noticeable sand content; many, fine, distinct, yellowish-brown (10YR 5/6) mottles; weak, medium, prismatic structure parting to moderate, fine, subangular blocky that has continuous coatings of dark grayish brown (10YR 4/2); [illegible]

small areas of soils that have some stratified silt and sand just above the underlying material.

This soil is suited to the crops commonly grown in the county. Erosion is a hazard. Where they are practical to install, erosion control structures help reduce soil losses. Management group IIe-1.

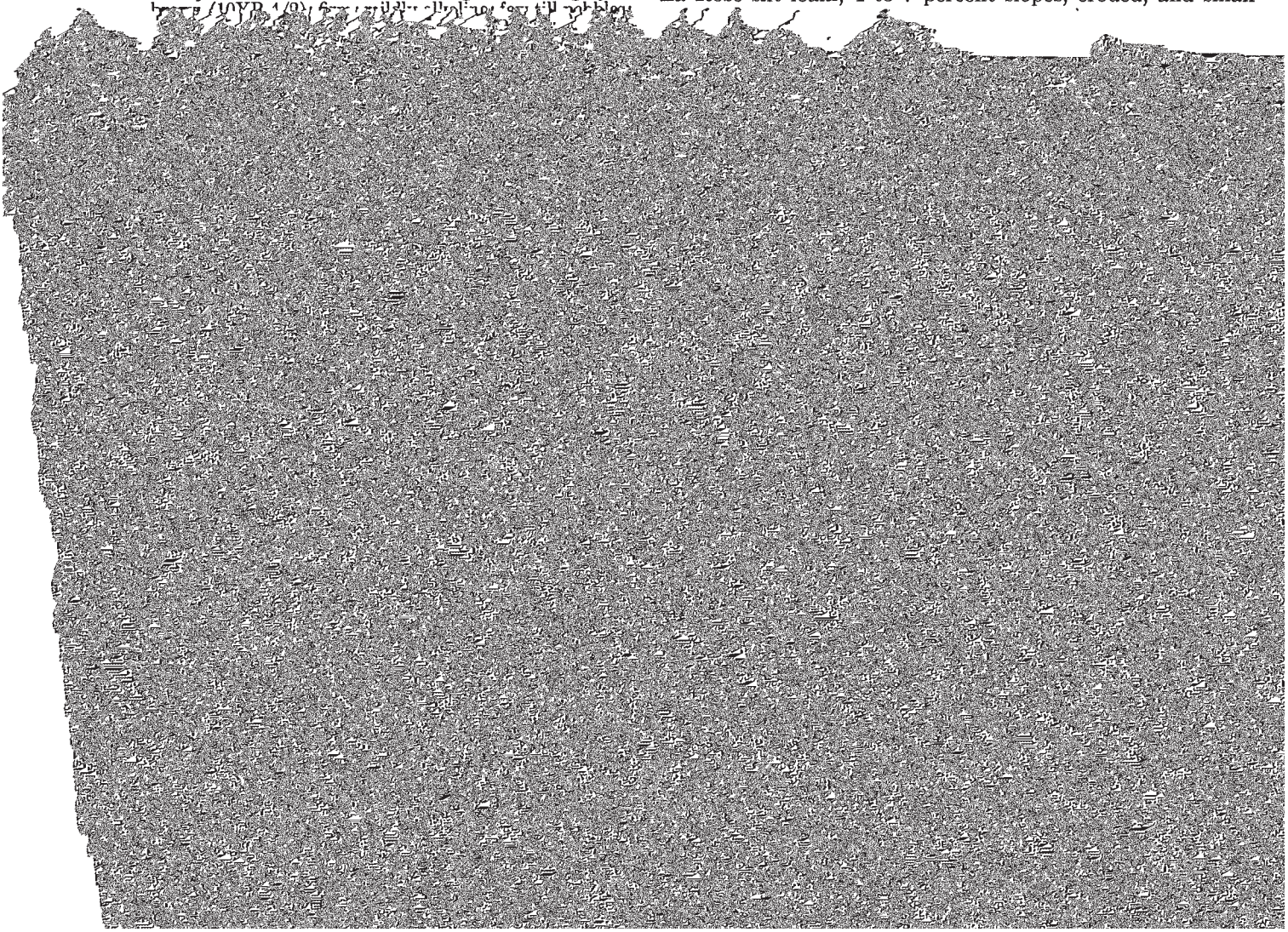
Saybrook silt loam, 2 to 4 percent slopes, eroded (145B2).—This soil is on small, somewhat rounded rises. It has a profile similar to the one described as representative of the series, but the surface layer is thinner. In most areas plowing mixes subsoil material into the surface layer.

Included with this soil in mapping are small areas of La Rose silt loam, 2 to 4 percent slopes, eroded.

This Saybrook soil is suited to the crops commonly grown in the county. Erosion is the major hazard, and special management practices should be used. Management group IIe-1.

Saybrook silt loam, 4 to 7 percent slopes, eroded (145C2).—This soil is in the morainal areas of the county. It has a profile similar to the one described as representative of the series, but the surface layer and subsoil are thinner. In most areas plowing mixes subsoil material into the surface layer.

Included with this soil in mapping are small areas of La Rose silt loam, 4 to 7 percent slopes, eroded, and small



Sparta loamy fine sand, 3 to 10 percent slopes (99C).—This

Strawn silt loam, 4 to 7 percent slopes (224C).—This

Strawn soils, 7 to 12 percent slopes, severely eroded (224D3).—These soils are on the sides of ridges and mounds in the morainal parts of the county. They have a surface layer that is mostly or entirely subsoil material.

Included with these soils in mapping are areas where the surface layer and subsoil are thinner than is typical for this soil and small areas where slopes are less than 7 percent.

These soils are suited to hay and pasture, but to only occasional cropping. Erosion is a serious hazard. Suitable management practices help reduce soil and water losses. Management group IVe-1.

Swygert Series

The Swygert series consists of nearly level to moderately sloping, somewhat poorly drained soils. These soils are at a somewhat higher elevation in the level glacial lakebed areas in the southeastern part of the county. They formed in silty clay to clay lakebed sediment. The native vegetation was prairie grasses.

In a representative profile the surface layer is black silty clay loam about 13 inches thick. The subsoil is about 28 inches thick. In sequence from the top, the upper 12 inches is dark grayish-brown and grayish-brown silty clay, the next 7 inches is gray heavy silty clay, and the lower 9 inches is mixed dark grayish-brown and grayish-brown heavy silty clay. The underlying material is mixed dark grayish-brown and grayish-brown light clay. It is moderately alkaline lakebed sediment.

Permeability is slow, and the available water capacity is high. The organic-matter content is moderate. Swygert soils are well suited to all the commonly grown crops. Most areas are farmed intensively and used for corn and soybeans. Increasing the organic-matter content, providing adequate drainage, and controlling erosion on the sloping soils are the major concerns of management.

Representative profile of Swygert silty clay loam, 0 to 2 percent slopes, 30 feet north and 1,300 feet east of the southwest corner of sec. 25, T. 35 N., R. 7 E.

Ap—0 to 8 inches, black (10YR 2/1) light silty clay loam; weak, fine, granular structure; firm; neutral; abrupt, smooth boundary.

A3—8 to 13 inches, black (10YR 2/1) silty clay loam; moderate, fine, granular structure; firm; neutral; clear, smooth boundary.

B21t—13 to 20 inches, dark grayish-brown (10YR 4/2) light silty clay; moderate, fine, subangular blocky structure; firm; neutral; clear, smooth boundary.

B22t—20 to 25 inches, grayish-brown (2.5Y 5/2) silty clay; many, medium, distinct, yellowish-brown (10YR 5/6) mottles; moderate, medium, prismatic structure parting to moderate, medium, angular blocky; coatings of dark grayish brown (2.5Y 4/2) on peds; firm; slightly acid; abrupt, smooth boundary.

B23t—25 to 32 inches, gray (2.5Y 5/0) heavy silty clay; many, medium, distinct, olive (5Y 4/3) mottles; moderate, medium, prismatic structure parting to moderate, medium, angular blocky; coatings of dark gray (5Y 4/1) to very dark gray (5Y 3/1) on peds; very firm; neutral; clear, wavy boundary.

B3—32 to 41 inches, mixed dark grayish-brown (10YR 4/2) and grayish-brown (10YR 5/2) heavy silty clay; weak, coarse, prismatic structure parting to weak, coarse, angular blocky; coatings of gray (5Y 5/1) on peds; very firm; moderately alkaline; slight effervescence; gradual, wavy boundary.

C—41 to 66 inches, mixed dark grayish-brown (10YR 4/2) and grayish-brown (10YR 5/2) light clay; weak, coarse, pris-

The A horizon ranges from 10 to 14 inches in thickness and from black to very dark gray in color. The B horizon ranges from dark grayish-brown to grayish-brown and gray heavy silty clay loam to clay and includes some greenish-gray colors in the lower part. In most places the solum ranges from 30 to 50 inches in thickness. The C horizon is variable thicknesses of silty clay, clay, and silty clay loam lakebed sediments. In many areas strata of sand and gravel are 6 to 8 feet below the surface.

Swygert soils are associated with the poorly drained Bryce soils. They are in positions similar to those of Martinton soils, but they contain more clay throughout the solum.

Swygert silty clay loam, 0 to 2 percent slopes (91A).—This soil is in broad, irregularly shaped areas at higher elevations in the nearly level glacial lakebed areas. It has the profile described as representative of the series.

Included with this soil in mapping are small areas of Bryce silty clay and Martinton silt loam, 0 to 2 percent slopes. Also included are areas of soils that have a more gray colored surface layer. Distinct gray spots are shown on the detailed soil map by the conventional symbol.

A periodic high water table and slow permeability are serious limitations to the use of this soil. Artificial drainage is needed for good management. Management group IIw-4.

Swygert silty clay loam, 2 to 4 percent slopes (91B).—This soil is in irregularly shaped areas between broad flat areas and areas of poorly drained Bryce soils in the lakebed parts of the county. The soil has a profile similar to the one described as representative of the series, but the surface layer and subsoil are thinner.

Included with this soil in mapping are small areas of Swygert silty clay loam, 0 to 2 percent slopes, and small eroded areas.

Slow permeability, wetness in spring, and the hazard of erosion are the major concerns of management. Erosion control practices and drainage are generally needed to reduce soil losses and obtain optimum crop response. Management group IIe-2.

Swygert silty clay loam, 3 to 7 percent slopes, eroded (91C2).—This soil is on the sharper breaks into drainageways and into areas of Bryce soils in the glacial lakebed parts of the county. It has a profile similar to the one described as representative of the series, but the surface layer and subsoil are thinner. In most areas plowing has mixed subsoil material into the surface layer.

Included with this soil in mapping are small severely eroded areas and small areas where slopes are more than 7 percent.

This soil is suited to cropping if erosion is adequately controlled. Erosion control is a necessary part of good management. Management group IIIe-2.

Thorp Series

The Thorp series consists of nearly level to depressional, poorly drained soils. These soils are mainly in the northern part of the county. They formed in moderately thick and thin deposits of silt loam material and in the underlying medium-textured glacial till. The native vegetation was prairie grasses that were adapted to wet conditions.

In a representative profile the surface layer is very dark gray silt loam about 11 inches thick. The subsurface layer is dark grayish-brown silt loam about 4 inches thick. The subsoil is about 50 inches thick. In sequence from the top, it is 6 inches of grayish-brown light silty clay loam, 21 inches of gray silty clay loam, and 23 inches of mixed gray and yellowish-brown silt loam and loam. The underlying material

Permeability is slow, and the available water capacity is high. The organic-matter content is moderate. If adequately drained, Thorp soils are suited to the commonly grown crops. Maintaining adequate drainage with tile and shallow surface ditches is the major concern of management.

Representative profile of Thorp silt loam, 39 feet north of road center and 110 feet west of farmstead fence, in the NE¼NW¼SW¼NE¼ sec. 2, T. 37 N., R. 6 E.

A1—0 to 11 inches, very dark gray (10YR 3/1) silt loam; moderate, fine, granular structure; friable; mildly alkaline; clear, smooth boundary.

A2—11 to 15 inches, dark grayish-brown (10YR 4/2) silt loam;

undulating to rolling relief on the glacial moraines in the southeastern and southwestern parts of the county. They formed in thin deposits of silt loam material and in the underlying silty clay loam glacial till. The native vegetation was prairie grasses.

In a representative profile the surface layer is black to very dark gray silt loam about 13 inches thick. The subsoil is about 22 inches thick. In sequence from the top, it is 9 inches of dark yellowish-brown silty clay and 13 inches of brown heavy silty clay loam and silty clay loam. The lower part of the subsoil has yellowish-brown and grayish-brown mottles, and small till pebbles occur throughout the profile.

than is typical for Varna soils. Also included are small areas where the surface layer is thinner and lighter colored than is typical for Varna soils.

This soil is suited to the crops commonly grown in the county. Erosion is a hazard. Erosion control practices are needed to reduce soil losses. Management group IIe-2.

Varna silt loam, 4 to 7 percent slopes, eroded (223C2).—This soil is on side slopes in the morainal parts of the county. It has a profile similar to the one described as representative of the series, but the surface layer and subsoil are thinner. In most areas, plowing has mixed subsoil material into the surface layer.

B1—14 to 19 inches, dark grayish-brown (10YR 4/2) light silty clay loam; common, medium, faint, yellowish-brown (10YR 5/4) mottles; moderate, very fine, subangular blocky structure; continuous organic coatings of very dark gray (10YR 3/1) on peds; friable; neutral; clear, smooth boundary.

B21t—19 to 27 inches, brown (10YR 5/3) silty clay loam; common, medium, faint, yellowish-brown (10YR 5/6) and grayish-brown (10YR 5/2) mottles; moderate, very fine, subangular blocky structure; continuous coatings of dark grayish brown (10YR 4/2) on peds; firm; slightly acid; clear, smooth boundary.

B22t—27 to 35 inches, grayish-brown (10YR 5/2) silty clay loam; many, medium, distinct, yellowish-brown (10YR 5/6) mottles and common, medium, faint, light brownish-gray

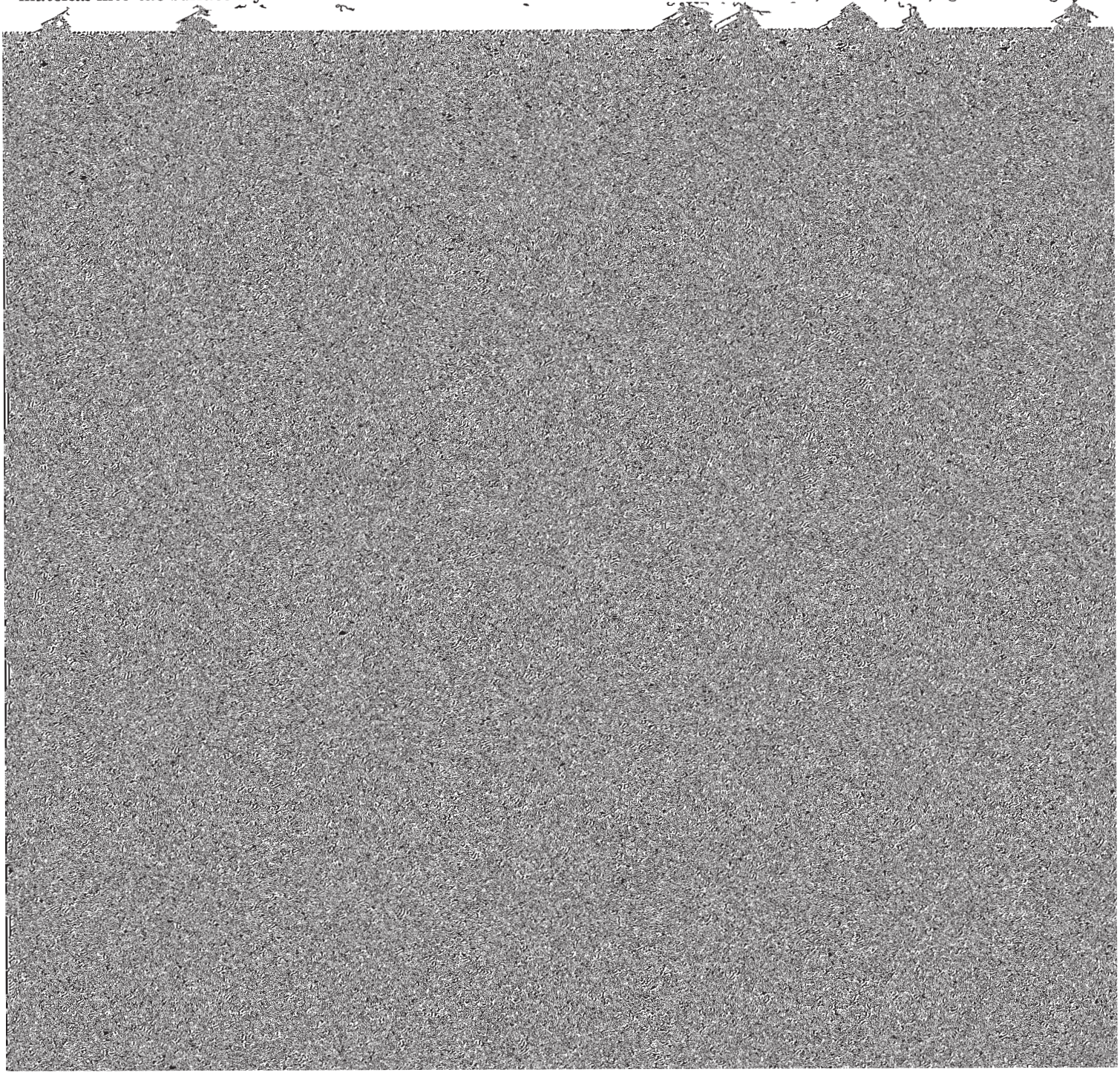


Figure 9.—**Stratified sand and gravel underlie Waupecan soils.**

brown silty clay loam, and 13 inches of brown loam and dark reddish-brown sandy loam and loamy sand. Gravel is common throughout the lower part of the subsoil. The underlying material is moderately alkaline, pale-brown and yellowish-brown sand and gravel.

Permeability is moderate, and the available water capacity

erate, very fine, subangular blocky; coatings of dark brown (10YR 4/3) on peds; firm; medium acid; clear, smooth boundary.

IIB24t—25 to 32 inches, brown (10YR 5/3) silty clay loam that has a noticeable content of sand; few, fine, faint, yellowish-brown (10YR 5/6) and grayish-brown (10YR 5/2) mottles; weak, medium, prismatic structure parting to moderate, fine and medium, subangular blocky; coatings of dark grayish brown (10YR 4/2) on peds; firm; medium acid; abrupt, smooth boundary.

IIB31—32 to 36 inches, brown (10YR 5/3) loam; weak, medium, prismatic structure parting to weak, medium and coarse, subangular blocky; coatings of dark brown (7.5YR 4/4) on peds; friable; medium acid; clear, smooth boundary.

IIB32—36 to 43 inches, dark reddish-brown (5YR 3/3) and dark-brown (7.5YR 3/4) sandy loam; weak, medium, prismatic structure parting to single grained; very friable; medium acid; clear, smooth boundary.

IIB33—43 to 45 inches, dark-brown (7.5YR 4/4) loamy sand; single grained; loose; neutral; abrupt, smooth boundary.

IIC—45 to 52 inches, pale-brown (10YR 6/3) and yellowish-brown (10YR 5/6) sand and gravel; single grained; loose; moderately alkaline.

The A horizon ranges from 10 to 16 inches in thickness. The upper part of the B horizon ranges from dark-brown to yellowish-brown light silty clay loam to heavy silty clay loam. The lower part of the B horizon ranges from yellowish-brown to dark reddish-brown silty clay loam that has a gritty feel or clay loam to gravelly loam and loamy sand. The solum ranges from 42 inches to 55 inches in thickness. The underlying material is stratified sand and gravel.

Waupecan soils are near Rush and Dresden soils. They have a thicker, darker colored A1 horizon than Rush or Dresden soils.

Waupecan silt loam, 0 to 2 percent slopes (369A).—This soil is in large areas that have no drainage pattern. It has the profile described as representative of the series.

Included with this soil in mapping are small areas where the lower part of the subsoil is mottled and areas where the combined surface layer and subsoil are thinner than is typical of Waupecan soil. Small depressions are shown on the detailed soil map by the conventional symbol.

This soil is well suited to the crops commonly grown in the county. It can be cropped intensively. Management group I-1.

Waupecan silt loam, 2 to 4 percent slopes (369B).—This soil is on small, irregularly shaped mounds and short breaks to major drainageways.

Included with this soil in mapping are small areas where

The main considerations in managing cultivated soils in this county are controlling erosion, overcoming the wetness hazard, protecting from flooding, conserving moisture, and maintaining tilth and fertility.

Measures that help control erosion include terracing, contour farming, minimum tillage, cover crops, grassed waterways, and crop residue. Generally, a combination of several measures is used.

Measures that help overcome wetness include tile drains, shallow surface ditches, surface inlets to tile drains, drainage ditches, and diversions. Levees can help protect against floods.

Conserving moisture generally means reducing evaporation, limiting runoff, increasing infiltration, and controlling weeds. Practices that help do this include minimum tillage, crop residue, contour farming, stripcropping, and field windbreaks.

Applying chemical fertilizer, green manure, and barnyard manure and including cover crops, grasses, and legumes in the cropping system help maintain tilth and fertility. Crops respond well to fertilizer on all soils used for crops.

Lime is needed periodically on most soils. Soils on bottom lands and the Harpster soils are neutral or calcareous and do not need lime. Controlling erosion also helps conserve fertility and maintain tilth.

Capability grouping

Capability grouping shows, in a general way, the suitability of soils for most kinds of field crops. The soils are grouped according to their limitations when used for field crops, the risk of damage when they are used, and the way they respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops that require special management.

Those familiar with the capability classification can infer from it much about the behavior of soils when they are used for other purposes, but this classification is not a substitute for interpretations designed to show the suitability and limitations of groups of soils for forest trees or for engineering.

In the capability system, the kinds of soils are grouped at three levels: the capability class; the subclass; and the unit, which is called management group in this survey. These levels are discussed in the following paragraphs.

Capability Classes, the broadest groups, are designated by Roman numerals I to VIII. The numerals indicate progressively greater limitations and narrower choices for practical use.

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants, require very careful management, or both.

Class V soils are not likely to erode but have other limitations that limit their use largely to pasture, range, woodland, or wildlife (no class V soils are in Kendall County).

Class VI soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife.

Class VII soils have very severe limitations that make them unsuited to cultivation and restrict their use largely to pasture or range, woodland, or wildlife.

Class VIII soils and landforms have limitations that preclude their use for commercial plants and restrict their use to recreation, wildlife, water supply, or esthetic purposes (no class VIII soils are in Kendall County).

Capability Subclasses are soil groups within one class; they are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral; for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in some parts of the United States but not in Kendall County, shows that the chief limitation is climate that is too cold or too dry.

Class I contains no subclasses, because the soils of this class have few limitations. Class V can contain, at the most, only the subclasses indicated by *w*, *s*, and *c*, because the soils in class V are subject to little or no erosion, although they have other limitations that restrict their use largely to pasture, range, woodland, wildlife, or recreation.

Management Groups, or capability units, are soil groups within the subclasses. The soils in one management group are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus, the management group is a convenient grouping for making many statements about management of soils. Management groups are generally designated by adding an Arabic numeral to the subclass symbol; for example, IIw-1 or IIIe-1. Thus, in one symbol the Roman numeral designates the capability class, or degree of limitation; the small letter indicates the subclass, or kind of limitation, as defined in the foregoing paragraph; and the Arabic numeral specifically identifies the management group within each subclass.

The capability classification of the soils in Kendall County is given by management groups in the Guide to Mapping Units at the back of this survey.

Management groups

In the following pages the management groups in Kendall County are described, and suggestions are given for the use and management of all the soils of each group. The names of soil series represented are mentioned in the description of each management group, but this does not mean that all soils of a given series appear in the group. To find the names of all the soils in any given management group, refer to the Guide to Mapping Units at the back of this survey.

Soils used for cultivated crops generally need lime and fertilizer. The amounts to apply on a given soil should be determined by soil tests.

MANAGEMENT GROUP I-1

This group consists of deep, moderately well drained and

Dodge, DuPage, Plano, Plattville, Proctor, Rush, St. Charles, Saybrook, and Waupecan series. These soils generally have a surface layer of silt loam or loam and a subsoil of silty clay loam and clay loam. DuPage soils are loam and sandy loam below the surface layer.

Permeability is moderate, and the available water capacity is high. The organic-matter content is high in the DuPage and Plano soils and moderate to low in the other soils.

These soils are well suited to corn, soybeans, small grains, and meadow. They are seldom used for pasture or woodland. Row crops can be grown intensively. Such practices as conservation tillage reduce soil compaction and help control soil blowing.

MANAGEMENT GROUP I-2

This group consists of deep, somewhat poorly drained, nearly level soils of the Brenton, Elburn, Kendall, Lisbon, Millbrook, Mundelein, and Virgil series. These soils have a surface layer of silt loam and a subsoil of silty clay loam and clay loam.

Permeability is moderate, and the available water capacity is high. The organic-matter content is low in the Kendall soils and high to moderate in the other soils.

Additional drainage is needed in some areas. Maintaining tilth, fertility, and the organic-matter content is a necessary part of good management.

These soils are well suited to corn, soybeans, small grains, and meadow. They are seldom used for pasture or woodland. Row crops can be grown intensively. Such practices as

The major concerns of management are controlling erosion, maintaining good tilth and organic-matter content, and providing drainage in some areas. All crop residue should be returned to the soil to help maintain the organic-matter content and provide good tilth. Grassed waterways remove excess water safely. Some small areas need additional drainage. Conservation tillage is an aid to good management of these soils.

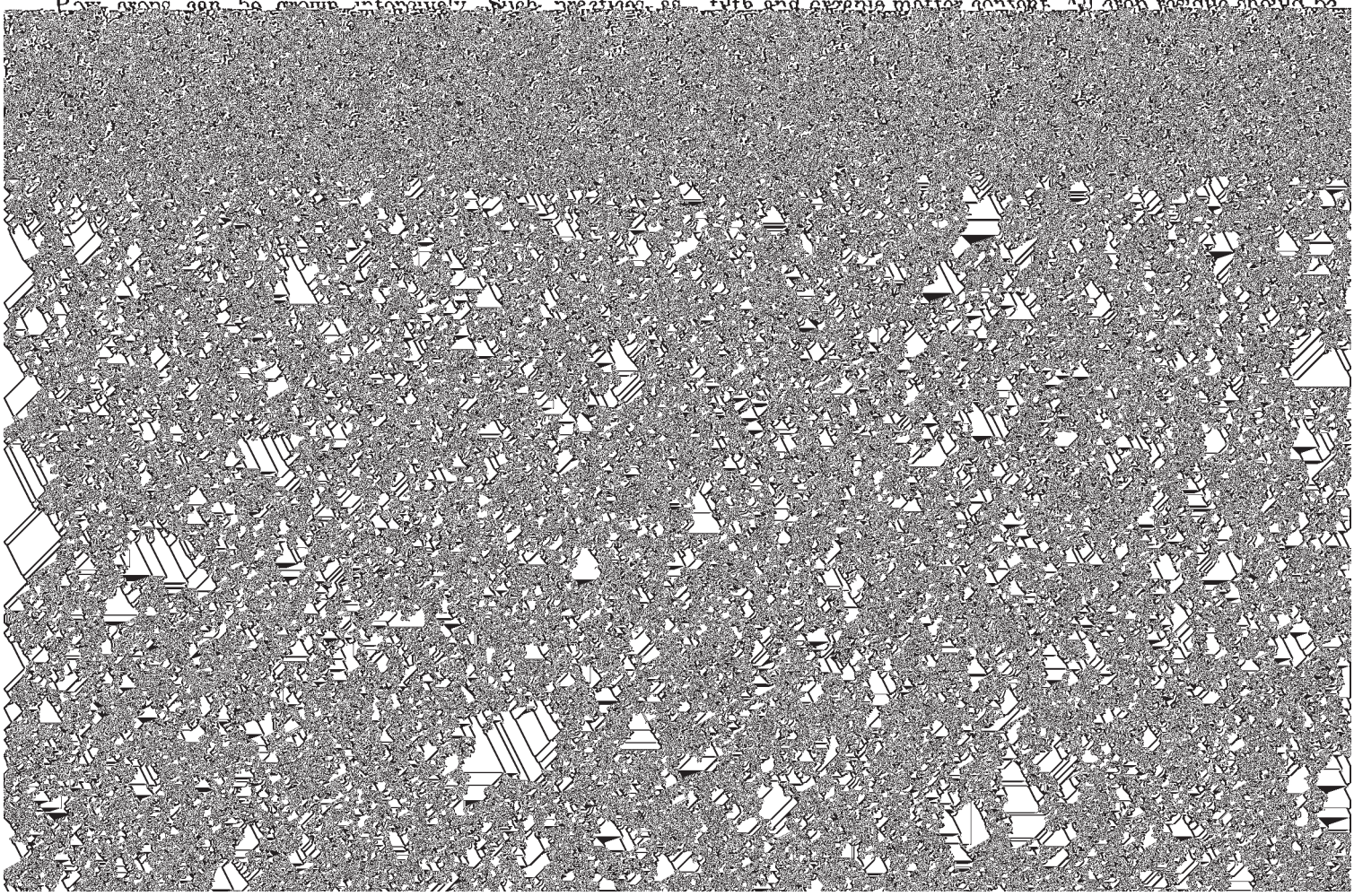
These soils are well suited to corn, soybeans, small grains, and meadow. If they are well managed, they can be used intensively for cultivated crops and meadow.

MANAGEMENT GROUP IIw-1

This group consists of deep, poorly drained and very poorly drained, nearly level soils of the Drummer, Harpster, Knight, Milford, and Thorp series. These soils have a surface layer of silty clay loam or silt loam and a subsoil of silty clay loam and silty clay.

Permeability is moderate to slow, and the available water capacity is high to very high. The organic-matter content is moderate in the Thorp soil and high in the other soils. Harpster soils are calcareous throughout the profile.

Providing adequate drainage is the main concern of management. Tile drains are effective where adequate outlets are available. Tile lines should be spaced more closely in the Milford and Thorp soils, because they have slower permeability. Open ditches provide outlets for the tile lines. Good management and minimum tillage are needed to maintain tilth and organic matter content. All crop residue should be



Permeability is moderately slow to slow, and the available water capacity is high to very high.

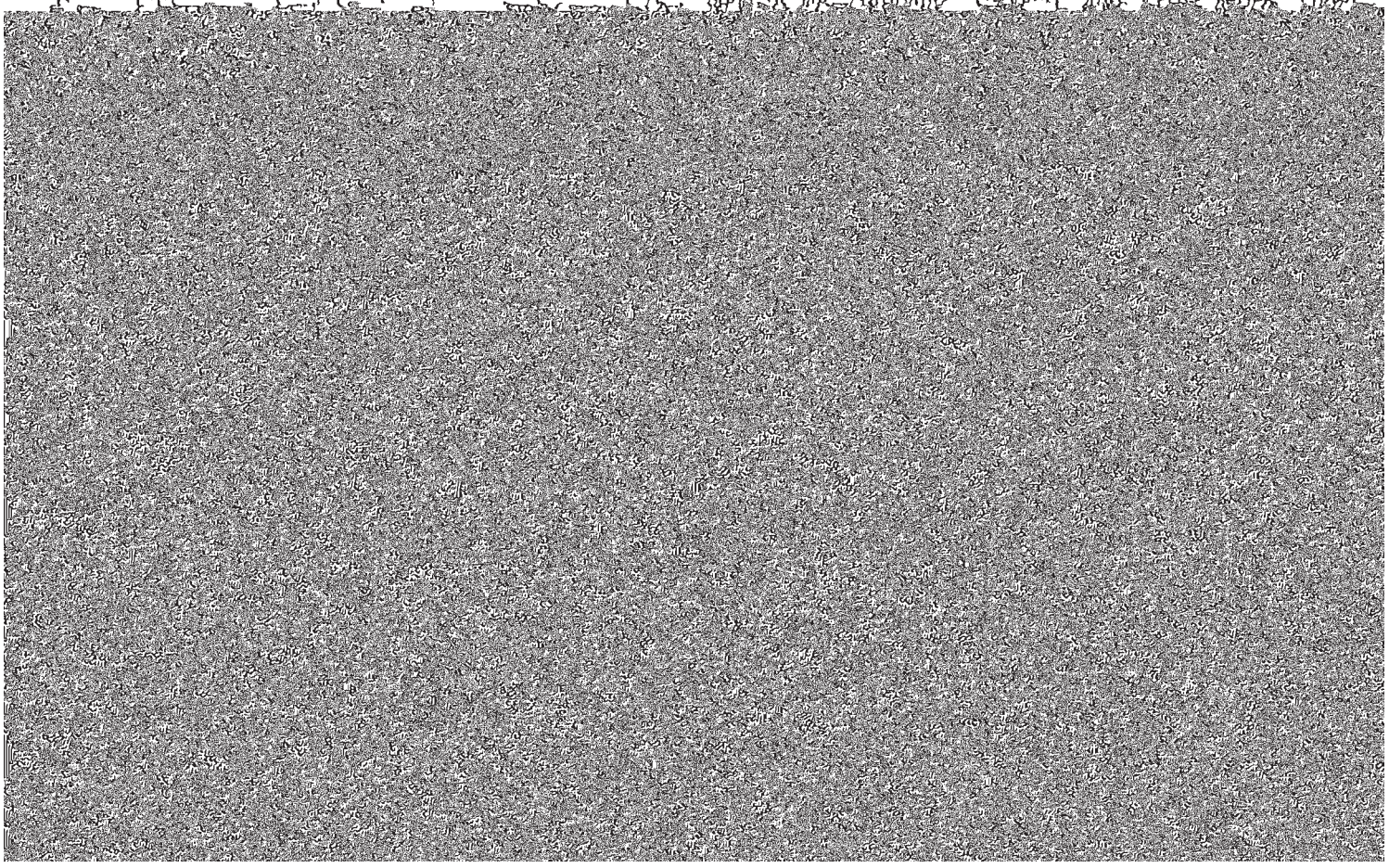
Providing adequate drainage and maintaining good tilth are the major concerns of management. Because the Peotone soils are in depressions that receive runoff from surrounding soils and the Bryce soils have slow permeability, tile drainage is of limited value. In areas of Peotone soils, tile outlets are difficult to locate, and surface inlets must be maintained. In areas of Bryce soils, tiles are most effective if used with surface inlets where water tends to pond. In most areas a combination of shallow surface drains and random tile lines is most effective. Open ditches are used to collect the water from the surface drains and the tile lines.

Good management and minimum tillage help to maintain tilth and the organic-matter content. All crop residue should be returned to the soil. These soils are difficult to work if they are plowed when wet. Large acreages are plowed in fall and left bare during winter to balance the workload. Also, this allows freezing and thawing to break up large clods and compacted soil. Where soil blowing occurs, strips should be left unplowed or winter cover crops should be used. An alternative conservation measure is to chisel in fall.

These soils are suited to corn, soybeans, small grains, and meadow. They are seldom used for pasture or woodland. Row crops can be grown intensively.

MANAGEMENT GROUP IIw-4

This group consists of deep, nearly level, somewhat poorly drained soils of the Del Rey, Martinton, Nappanee, and Swygert series. These soils have a surface layer of silt loam or silty clay loam and a subsoil of silty clay.



for other crops is limited by the moderate to low available water capacity. Corn and soybeans are the main crops, but large acreages are in small grains, meadow, and pasture. If the soils are used for pasture, adapted legumes and grasses should be favored in reseeding.

MANAGEMENT GROUP IIIe-1

This group consists of deep, well-drained, moderately sloping to strongly sloping soils of the Camden, La Rose, and Strawn series. These soils are eroded to severely eroded. They have a surface layer of silt loam and a subsoil of silty clay loam and clay loam.

Permeability is moderate, and the available water capacity is high. The organic-matter content is low to moderate.

Controlling erosion is the main concern of management. Maintaining the organic-matter content is also necessary. Where erosion is severe, maintaining good tilth is a serious concern. Such conservation practices as contouring, terracing, and conservation tillage are needed to reduce erosion and keep soil losses at a low level. A crop rotation that includes grasses and legumes helps maintain tilth and the organic-matter content. Grassed waterways are needed to remove excess water safely.

These soils are suited to corn and soybeans. If they are used for pasture, adapted legumes and grasses should be favored in reseeding.

MANAGEMENT GROUP IIIe-2

This group consists of deep, somewhat poorly drained and moderately well drained, gently sloping to moderately sloping soils of the Nappanee, Swygert, and Verna series. Those

zation and controlling the ground water level during the growing season.

If drained, these soils are well suited to corn, soybeans, and many vegetable crops. They are seldom used for small grains and meadow. Some areas that are too wet for row crops are used for pasture. Overdrainage can result in soil blowing or fire.

Controlling erosion is the major concern of management. Providing a good protective cover of pasture grasses or trees is also a concern. If old pastures are reseeded, they should be tilled on the contour to cut down erosion damage. Woodland should be maintained and protected from fire and grazing animals.

These soils are suited to permanent pasture and woodland. Areas now under cultivation should be converted to pasture or woodland.

MANAGEMENT GROUP IIIs-1

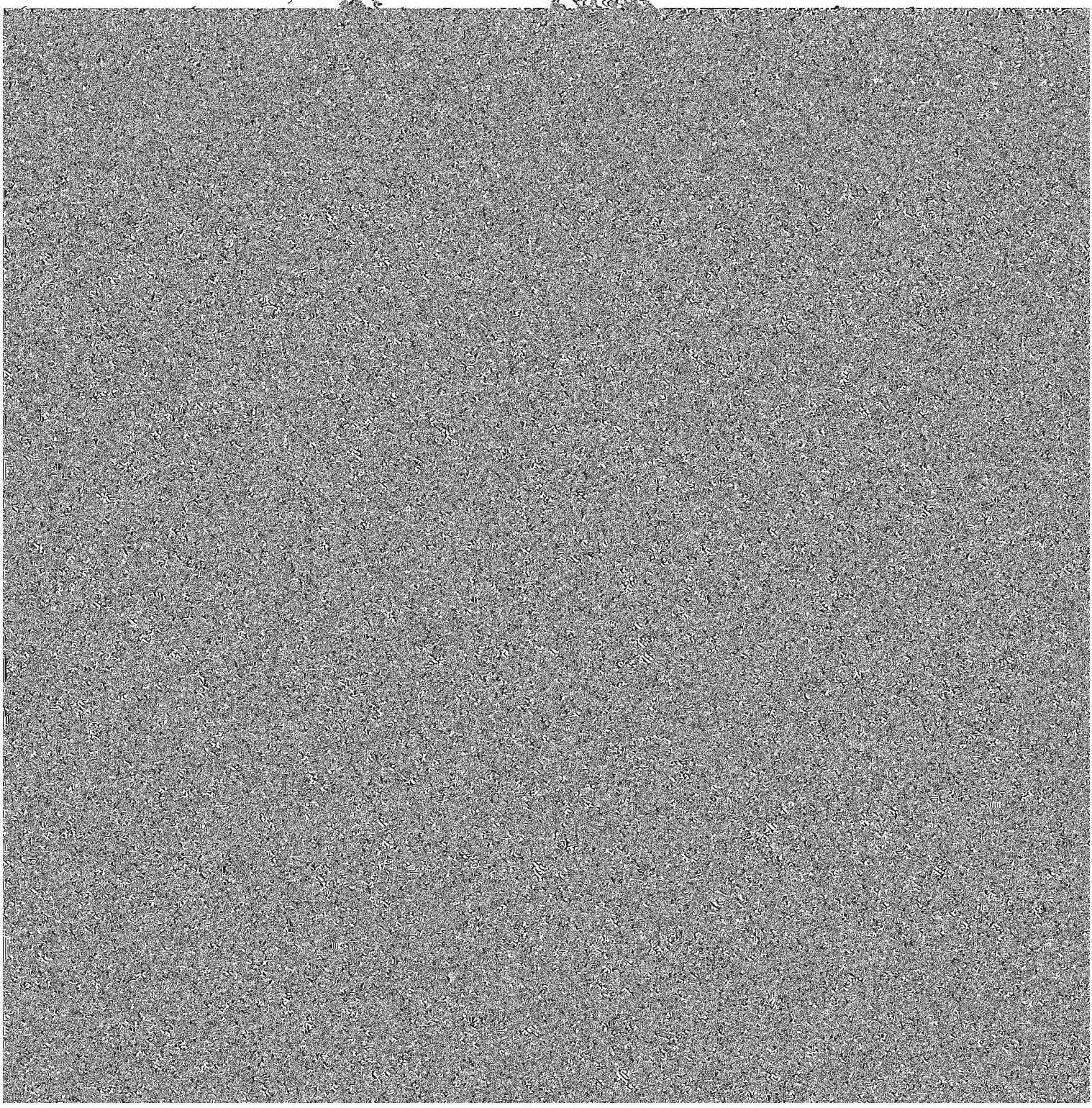


TABLE 4.—*Predicted average acre yields of principal crops*

[Yields are those to be expected under a high level of management. Absence of a yield figure indicates that the soil is not well suited to the crop or that the crop is not commonly grown]

Soil[1]	Corn	Soybeans	Wheat	Alfalfa–grass	Rotation pasture
	Bushels	*Bushels*	*Bushels*	*Tons*	*AUD*[2]
Barrington silt loam, 0 to 2 percent slopes	115	40	50	5.0	250
Barrington silt loam, 2 to 4 percent slopes	112	40	50	5.0	250
Barrington silt loam, 4 to 7 percent slopes, eroded	105	35	45	4.0	200
Batavia silt loam, 0 to 2 percent slopes	120	42	52	5.2	260
Batavia silt loam, 2 to 4 percent slopes	115	40	52	5.2	260
Brenton silt loam	140	48	58	5.9	290
Brenton silt loam, bedrock substratum	140	48	58	5.9	290
Bryce silty clay	105	38	45	4.5	225
Camden silt loam, 1 to 4 percent slopes	108	38	48	5.0	250
Camden silt loam, 4 to 7 percent slopes, eroded	100	35	42	4.5	225
Camden silt loam, 7 to 12 percent slopes, eroded	95	32	40	4.2	210
Del Rey silt loam	105	35	45	4.5	225
Dodge silt loam, 0 to 2 percent slopes	105	38	48	4.8	240
Dodge silt loam, 2 to 4 percent slopes	102	38	48	4.8	240
Dodge silt loam, 4 to 7 percent slopes, eroded	95	35	42	4.2	210
Dresden silt loam, 0 to 2 percent slopes	90	32	42	3.8	190
Dresden silt loam, 2 to 4 percent slopes	90	32	42	3.8	190
Drummer silty clay loam	130	45	55	3.4	170
DuPage loam	115	40	48	4.5	225
Elburn silt loam	140	48	58	5.8	290
Fox silt loam, 1 to 4 percent slopes	85	28	38	3.5	175
Fox silt loam, 4 to 7 percent slopes, eroded	75	25	35	3.2	160
Harpster silty clay loam	120	42	50	4.5	225
Hennepin silt loam, 15 to 30 percent slopes				2.5	125
Hennepin silt loam, 30 to 45 percent slopes					
Houghton muck	110	38			
Kendall silt loam	115	40	50	5.0	250
Knight silt loam	103	38	43	4.0	200
Landes fine sandy loam	70	28	32	3.0	150
La Rose silt loam, 2 to 4 percent slopes, eroded	105	35	45	4.8	240
La Rose silt loam, 4 to 7 percent slopes, eroded	95	35	42	4.5	225
La Rose soils, 4 to 7 percent slopes, severely eroded	85	30	38	4.0	200
La Rose soils, 7 to 12 percent slopes, severely eroded	75	28	35	4.0	200
Lena muck	109	37			
Lisbon silt loam	130	45	55	5.5	275
Lorenzo loam, 4 to 7 percent slopes	65	25	32	2.5	125
Lorenzo loam, 7 to 18 percent slopes, eroded	60	22	30	2.5	125
Lorenzo loam, 18 to 40 percent slopes					70
Martinton silt loam, 0 to 2 percent slopes	115	40	50	5.0	250
Martinton silt loam, 2 to 4 percent slopes	103	37	42	4.0	200
Milford silty clay loam	115	40	48	4.8	240
Milford silty clay loam, bedrock substratum	115	40	48	4.8	240
Millbrook silt loam	125	45	55	5.2	260
Millington silt loam	115	40	45	4.2	210
Mundelein silt loam	115	40	50	5.0	250
Nappanee silt loam, 0 to 2 percent slopes	75	28	35	3.0	150
Nappanee silt loam, 2 to 4 percent slopes	75	28	35	3.0	150
Peotone silty clay loam	105	38	40	3.5	175
Plano silt loam, 0 to 2 percent slopes	135	48	55	5.5	275
Plano silt loam, 2 to 4 percent slopes	132	46	55	5.5	275
Plano silt loam, 4 to 7 percent slopes, eroded	115	40	50	4.8	240
Plattville silt loam, 0 to 2 percent slopes	110	40	48	4.0	200
Plattville silt loam, 2 to 4 percent slopes	105	37	46	4.0	200
Proctor silt loam, 0 to 2 percent slopes	125	45	55	5.2	260
Proctor silt loam, 2 to 4 percent slopes	123	45	55	5.2	260
Proctor silt loam, 4 to 7 percent slopes, eroded	115	40	50	4.8	240
Ripon silt loam, 1 to 4 percent slopes	92	35	40	4.0	200
Ripon silt loam, 4 to 7 percent slopes, eroded	85	25	28	3.5	175
Rush silt loam, 0 to 2 percent slopes	115	40	50	5.0	250
Rush silt loam, 2 to 4 percent slopes	112	40	50	5.0	250
St. Charles silt loam, 0 to 2 percent slopes	115	40	50	4.8	240
St. Charles silt loam, 2 to 4 percent slopes	112	40	50	4.8	240
St. Charles silt loam, 4 to 7 percent slopes, eroded	100	35	42	4.5	225
Sawmill silty clay loam	120	42	50	4.8	240
Saybrook silt loam, 0 to 2 percent slopes	120	42	50	5.2	260
Saybrook silt loam, 2 to 4 percent slopes	118	42	50	5.2	260
Saybrook silt loam, 2 to 4 percent slopes, eroded	115	40	50	5.0	250
Saybrook silt loam, 4 to 7 percent slopes, eroded	110	38	48	4.8	240
Sparta loamy fine sand, 3 to 10 percent slopes	60	20	32	2.5	125

TABLE 4.—*Predicted average acre yields of principal crops*—Continued

Soil[1]	Corn	Soybeans	Wheat	Alfalfa–grass	Rotation pasture
	Bushels	*Bushels*	*Bushels*	*Tons*	*AUD*[2]
Strawn silt loam, 4 to 7 percent slopes	85	30	42	4.0	200
Strawn silt loam, 4 to 7 percent slopes, eroded	80	28	38	3.5	175
Strawn silt loam, 7 to 15 percent slopes, eroded	75	28	35	3.2	160
Strawn silt loam, 15 to 30 percent slopes					125
Strawn soils, 4 to 7 percent slopes, severely eroded	75	28	35	3.2	160
Strawn soils, 7 to 12 percent slopes, severely eroded	70		35	3.0	150
Swygert silty clay loam, 0 to 2 percent slopes	100	35	45	4.5	225
Swygert silty clay loam, 2 to 4 percent slopes	95	32	42	4.2	210
Swygert silty clay loam, 3 to 7 percent slopes, eroded	85	30	38	4.0	200
Thorp silt loam	96	35	42	4.2	210
Varna silt loam, 1 to 4 percent slopes	100	38	48	5.0	250
Varna silt loam, 4 to 7 percent slopes, eroded	88	34	42	4.8	240
Varna soils, 7 to 15 percent slopes, severely eroded	65	20	35	3.5	175
Virgil silt loam	125	45	55	5.2	260
Waupecan silt loam, 0 to 2 percent slopes	130	45	50	4.5	225
Waupecan silt loam, 2 to 4 percent slopes	127	43	50	4.5	225

[1] Cut and fill land and Gravel pits are not listed because they are generally not used for cultivated crops.

[2] AUD is animal-unit-days, a term used to express the carrying capacity of pasture. It is the number of days 1 acre can carry 1 animal unit during a single grazing season without injury to the sod. One animal unit is defined as 1 cow, 2 yearling calves, 1 horse, 5 sheep, or 4 brood sows. For example, 20 sheep can graze about 25 days in a pasture that has a capacity of 100 animal-unit-days.

and burning. In 1967, according to a land-use study (*10*), only 4,500 acres, or less than 3 percent, of the woodland remained. Since that time the demand for wooded homesites has further reduced the acreage.

At present the woodland consists of understocked stands or poor-quality trees. A large part of it is on the steeper Strawn, Hennepin, and Lorenzo soils and on inadequately drained soils along the river and streams.

Many acres of steep, severely eroded soils in Kendall County should be reforested. Well-managed woodland not only produces wood products, but also protects watersheds, provides wildlife cover, and offers many recreational and educational opportunities.

The soils of Kendall County have been placed in six tree planting groups. In table 5 each group is briefly described, and the trees normally suitable for forest plantings, ornamental plantings, and windbreak plantings are shown. The names of the soil series represented are mentioned in the description of each group. The tree planting classification of each individual soil is given in the "Guide to Mapping Units." Cut and fill land and Gravel pits were not placed in

reclamation, special design, intense maintenance, or a combination of these is required.

Playgrounds are areas used intensively for baseball, football, badminton, and similar organized games. Soils suitable for this use need to withstand intensive foot traffic. The best soils have a nearly level surface free of coarse fragments and rock outcrops, good drainage, freedom from flooding during periods of heavy use, and a surface that is firm after rain but not dusty when dry. If grading and leveling are required, depth to rock is important.

Picnic areas are attractive natural or landscaped tracts that are used mainly for preparing meals and eating outdoors. These areas are subject to heavy foot traffic. Most of the vehicular traffic, however, is confined to access roads. The best soils are firm when wet but not dusty when dry, are free of flooding during the season of use, and do not have slopes or stoniness that greatly increase the cost of leveling sites or of building access roads.

Paths and trails are used for local and cross-country travel by foot or horseback. Design and layout should require little or no cutting and filling. The best soils are at least moderately

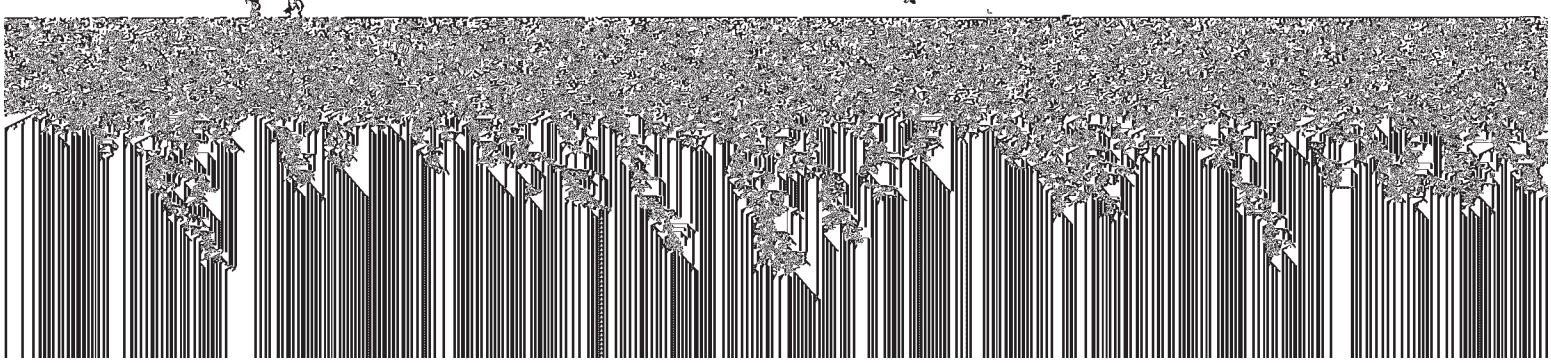
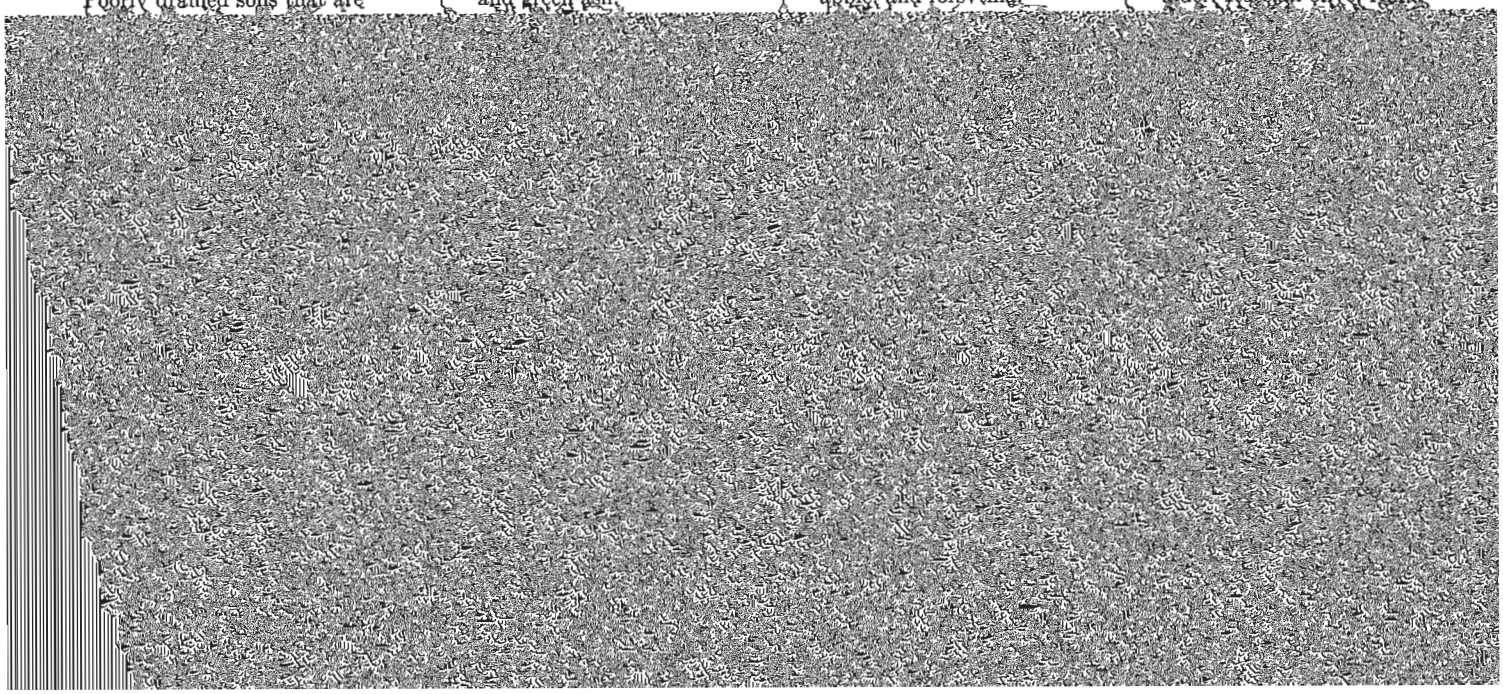


TABLE 5.—*Guide for forest, ornamental, and windbreak plantings*

Tree planting groups	Forest plantings	Ornamental plantings at maturity	Windbreak plantings
Group 1: Barrington, Batavia, Camden, Dodge, Dresden, Fox, Hennepin, La Rose, Lorenzo, Plano, Plattville, Proctor, Ripon, Rush, St. Charles, Saybrook, Sparta, Strawn, Varna, and Waupecan soils. Well drained to moderately well drained permeable soils.	In sheltered coves and on north and east slopes: white oak, red oak, European larch, eastern white pine, and red pine. On exposed ridges of south- and west-facing slopes and on open, level terrain: red pine, eastern white pine, and Norway spruce.	Less than 30 feet high: Amur maple, European mountain ash, flowering dogwood, Oriental arborvitae, and blackgum. 30 to 60 feet high: American hornbean, Colorado blue spruce, Norway maple, green ash, and white birch. More than 60 feet high: yellow-poplar, sweetgum, white fir, black cherry, sugar maple, and European beech.	Norway spruce, eastern red pine, white pine, white spruce, and eastern redcedar.
Group 2: Brenton, Elburn, Kendall, Lisbon, Millbrook, Mundelein, and Virgil soils. Somewhat poorly drained permeable soils.	Red oak, white oak, eastern white pine, red pine, eastern larch, Norway spruce, and Douglas-fir.	Less than 30 feet high: European mountain ash, striped maple, mountain maple, Amur maple, flowering dogwood, and redbud. 30 to 60 feet high: American hornbean, Norway maple, green ash, and American yellowwood. More than 60 feet high: sugar maple, European beech, pin oak, white oak, Chinese chestnut, white ash, and sweetgum.	Eastern redcedar, Lombardy poplar, red pine, white spruce, and Russian-olive.
Group 3: Del Rey, Martinton, Nappanee, and Swygert soils. Somewhat poorly drained soils that have moderately slow and slow permeability.	Sycamore, green ash, red maple, Norway spruce. Protect trees already established.	Less than 30 feet high: northern white-cedar and crabapple. 30 to 60 feet high: Norway maple, weeping willow, black spruce, moraine locust, aspen, and eastern redcedar. More than 60 feet high: red maple, white poplar, honeylocust (thornless), sweetgum, and European alder.	Eastern redcedar, Lombardy poplar, northern white-cedar, quaking aspen, and Russian-olive.
Group 4: Bryce, Drummer, Harpster, and Milford soils. Poorly drained soils that are	Black walnut, red oak, white oak, cottonwood, sycamore, and green ash.	Less than 30 feet high: flowering dogwood, crabapple, and forsythia.	Northern white-cedar, Lombardy poplar, speckled alder, Russian-olive, Amur



In table 7 the soils are placed in six groups and rated according to their suitability for elements of wildlife habitat and for kinds of wildlife. The ratings are good, fair, poor, and very poor. A rating of *good* means that habitat is easily established, improved, or maintained. *Fair* indicates that the soils have moderate limitations for establishing and maintaining habitat. *Poor* means that the soils have severe limitations for establishing and maintaining habitat and that management may be difficult and expensive. A rating of *very poor* means that it is generally impractical to establish and maintain wildlife habitat on these soils.

The six elements of wildlife habitat and the three kinds of wildlife shown in table 7 are defined in the following paragraphs.

Grain and seed crops are domestic grains or seed-producing annual plants, among which are such crops as corn, sorghum, wheat, oats, soybeans, buckwheat, and sunflower.

Grasses and legumes are domestic perennial grasses and legumes. Among these are such crops as brome, fescue, timothy, redtop, orchardgrass, reed canarygrass, clover, trefoil, alfalfa, and sericea lespedeza.

Wild herbaceous upland plants are native or introduced and mammals that normally live in such wet areas as ponds, marshes, and swamps. Elements of wildlife habitat used to rate the soils for this kind of wildlife are wetland food and cover plants and shallow water developments.

Engineering Uses of the Soils

This section is useful to those who need information about soils used as structural material or as foundation upon which structures are built. Among those who can benefit from this section are planning commissions, town and city managers, land developers, engineers, contractors, and farmers.

Among properties of soils highly important in engineering are permeability, strength, compaction characteristics, soil drainage condition, shrink-swell potential, grain-size distribution, plasticity, and soil reaction. Also important are depth to the water table, depth to bedrock, and soil slope. These properties, in various degrees and combinations, affect construction and maintenance of roads, airports, pipelines, foundations for small buildings, irrigation systems, ponds and small dams, and systems for disposal of sewage and refuse.

Information in this section of the soil survey can be helpful

TABLE 6.—*Interpretations*

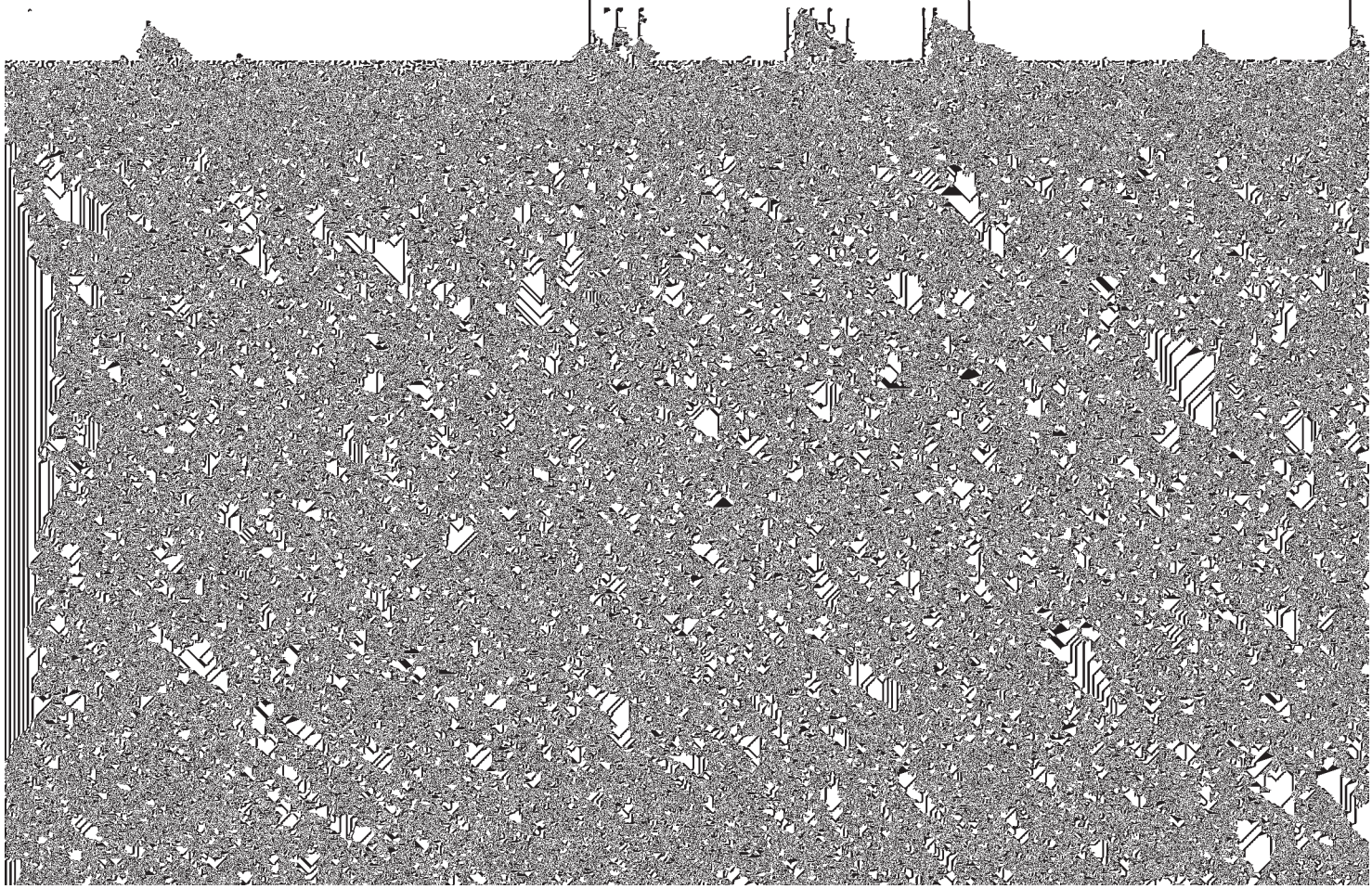
Soil series and map symbols	Degree of limitation and soil features affecting use for—	
	Playgrounds	Picnic areas
Barrington: 443A, 443B, 443C2	Slight where slope is 0 to 2 percent. Moderate where slope is 2 to 7 percent: grading may be necessary.	Slight
Batavia: 105A, 105B	Slight where slope is 0 to 2 percent. Moderate where slope is 2 to 7 percent: grading may be necessary.	Slight
Brenton: 149, R149	Moderate: seasonal high water table	Moderate: seasonal high water table
Bryce: 235	Severe: slow permeability; seasonal high water table near surface; sticky when wet; subject to ponding; slow to dry.	Severe: slow permeability; seasonal high water table near surface; sticky when wet; subject to ponding; slow to dry.
Camden: 134B, 134C2, 134D2	Slight where slope is 1 to 2 percent. Moderate where slope is 2 to 7 percent. Severe where slope is 7 to 12 percent: grading may be necessary.	Slight where slope is 1 to 7 percent. Moderate where slope is 7 to 12 percent.
Del Rey: 192	Moderate: seasonal high water table; slow to dry.	Moderate: seasonal high water table; slow to dry.
Dodge: 24A, 24B, 24C2	Slight where slope is 0 to 2 percent. Moderate where slope is 2 to 7 percent: grading may be necessary.	Slight
Dresden: 325A, 325B	Slight where slope is 0 to 2 percent. Moderate where slope is 2 to 4 percent: grading may be necessary.	Slight
Drummer: 152	Severe: seasonal high water table near surface; sticky when wet; slow to dry.	Severe: seasonal high water table near surface; sticky when wet; slow to dry.
DuPage: 321	Severe: subject to flooding; seasonal high water table.	Moderate to severe, depending upon frequency of flooding: subject to flooding; seasonal high water table.
Elburn: 198	Moderate: seasonal high water table	Moderate: seasonal high water table
Fox: 327B, 327C2	Moderate	Slight
Harpster: 67	Severe: seasonal high water table near surface; subject to ponding; slow to dry.	Severe: seasonal high water table near surface; slow to dry; subject to ponding.
Hennepin: 25F, 25G	Severe	Severe
Houghton: 103	Severe: ponded most of the year if undrained; highly unstable if drained.	Severe: ponded most of the year if undrained; highly unstable if drained.
Kendall: 242	Moderate: seasonal high water table	Moderate: seasonal high water table

for recreational development

Degree of limitation and soil features affecting use for—Continued			
Paths and trails	Golf fairways	Cottage, service, and utility buildings	Camp areas
Slight	Slight	Slight	Slight.
Slight	Slight	Slight	Slight.
Moderate: seasonal high water table	Moderate: seasonal high water table.	Moderate: seasonal high water table.	Moderate: seasonal high water table.
Severe: slow permeability; sticky when wet; subject to ponding; slow to dry.	Severe: slow permeability; seasonal high water table near surface; sticky when wet; turf difficult to maintain.	Severe: slow permeability; subject to ponding; seasonal high water table near surface; sticky when wet.	Severe: slow permeability; subject to ponding; seasonal high water table near surface.
Slight	Slight where slope is 1 to 7 percent, moderate where slope is 7 to 12 percent.	Slight where slope is 1 to 7 percent. Moderate where slope is 7 to 12 percent if septic tank is not used or where slope is 4 to 7 percent if septic tank is used.	Slight where slope is 1 to 7 percent, moderate where slope is 7 to 12 percent.
Moderate: seasonal high water table; slow to dry.	Moderate: seasonal high water table; slow to dry; turf difficult to maintain.	Moderate if septic tank is not used. Severe if septic tank is used: seasonal high water table; slow permeability.	Moderate: seasonal high water table; slow to dry.
Slight	Slight where slope is 0 to 4 percent, moderate where slope is 4 to 7 percent.	Slight where slope is 0 to 7 percent if septic tank is not used. Moderate where slope is 4 to 7 percent if septic tank is used.	Slight.
Slight	Slight	Slight	Slight.
Severe: seasonal high water table near surface; sticky and slippery when wet; slow to dry.	Severe: seasonal high water table near surface; sticky when wet; slow to dry; turf easily damaged when wet.	Severe: seasonal high water table near surface; subject to ponding; slow to dry.	Severe: seasonal high water table near surface; subject to ponding; slow to dry.
Moderate: use restricted to non-flooding periods; seasonal high water table.	Severe: subject to flooding and overflow; seasonal high water table.	Severe: subject to flooding; seasonal high water table.	Severe: subject to flooding; seasonal high water table.
Moderate: seasonal high water table	Moderate: seasonal high water table.	Moderate: seasonal high water table.	Moderate: seasonal high water table.
Slight	Slight	Slight if septic tank is not used. Moderate if septic tank is used: possible ground water contamination if septic tank system is used	Slight.

TABLE 6.—*Interpretations for*

Soil series and map symbols	Degree of limitation and soil features affecting use for—	
	Playgrounds	Picnic areas
Knight: 191	Severe: seasonal high water table near surface; subject to ponding; slow to dry.	Severe: seasonal high water table near surface; subject to ponding.
Landes: 304	Severe: subject to flooding; lacks firm surface.	Moderate to severe, depending upon frequency of flooding.
La Rose: 60B2, 60C2, 60C3, 60D3	Moderate where slope is 2 to 7 percent. Severe where slope is 7 to 12 percent.	Slight where slope is 2 to 7 percent. Moderate where slope is 7 to 12 percent.
Lena: 210	Severe: ponded most of the year if undrained; highly unstable if drained.	Severe: ponded most of the year if undrained; highly unstable if drained.
Lisbon: 59	Moderate: seasonal high water table	Moderate: seasonal high water table
Lorenzo: 318C, 318D2, 318F	Moderate where slope is 4 to 7 percent: droughty; grading likely to expose gravel. Severe where slope is 7 to 30 percent.	Slight where slope is 4 to 7 percent. Moderate where slope is 7 to 18 percent: droughty. Severe where slope is 18 to 30 percent.



recreational development—Continued

Degree of limitation and soil features affecting use for—Continued			
Paths and trails	Golf fairways	Cottage, service, and utility buildings	Camp areas
Severe: seasonal high water table near surface; subject to ponding.	Severe: seasonal high water table near surface; subject to ponding.	Severe: seasonal high water table near surface; subject to ponding.	Severe: seasonal high water table near surface; subject to ponding.
Moderate to severe, depending upon frequency of flooding.	Severe: subject to flooding; turf difficult to maintain.	Severe: subject to flooding	Severe: subject to flooding; turf difficult to maintain.
Slight where slope is 2 to 7 percent	Slight where slope is 2 to 7	Slight where slope is 2 to 7	Slight where slope is 2 to 7

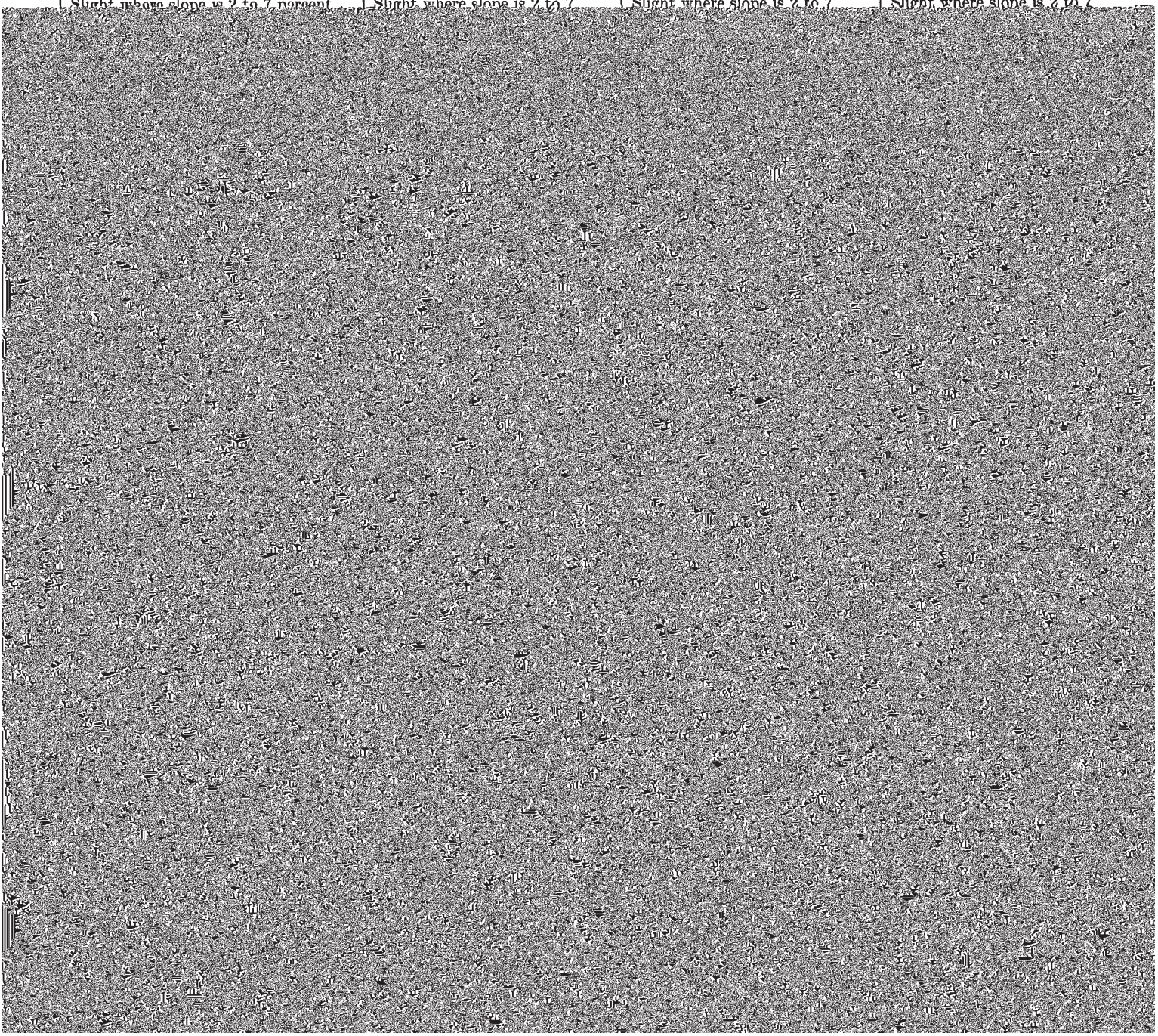


TABLE 6.—*Interpretations for*

Soil series and map symbols	Degree of limitation and soil features affecting use for—	
	Playgrounds	Picnic areas
Ripon: 324B, 324C2	Moderate where slope is 1 to 4 percent. Severe where slope is 4 to 7 percent: moderate depth to bedrock hinders construction.	Moderate where slope is 1 to 7 percent: moderate depth to bedrock hinders construction.
Rush: 791A, 791B	Slight where slope is 0 to 2 percent. Moderate where slope is 2 to 4 percent.	Slight
St. Charles: 243A, 243B, 243C2	Slight where slope is 0 to 2 percent. Moderate where slope is 2 to 7 percent: some grading may be necessary.	Slight
Sawmill: 107	Severe: subject to flooding; seasonal high water table near surface; sticky when wet.	Severe: subject to flooding; seasonal high water table near surface; sticky when wet.
Saybrook: 145A, 145B, 145B2, 145C2	Slight where slope is 0 to 2 percent. Moderate where slope is 2 to 7 percent: some grading may be necessary.	Slight
Sparta: 88C	Severe: soil texture unfavorable	Moderate: sandy soil difficult to vegetate; subject to blowing; lacks firm surface.
Strawn: 224C, 224C2, 224C3, 224D2, 224D3, 224F	Moderate where slope is 4 to 7 percent. Severe where slope is 7 to 30 percent.	Slight where slope is 4 to 7 percent. Moderate where slope is 7 to 15 percent. Severe where slope is 15 to 30 percent.
Swygert: 91A, 91B, 91C2	Moderate: seasonal high water table; slow permeability; sticky when wet.	Moderate: seasonal high water table; slow permeability; sticky when wet.
Thorp: 206	Severe: seasonal high water table near surface; subject to ponding; slow to dry.	Severe: seasonal high water table near surface; subject to ponding; slow to dry.
Varna: 223B, 223C2, 223D3	Moderate where slope is 2 to 7 percent. Severe where slope is 7 to 12 percent.	Slight where slope is 2 to 7 percent. Moderate where slope is 7 to 12 percent: slopes erodible.
Virgil: 104	Moderate: seasonal high water table	Moderate: seasonal high water table
Waupecan: 369A, 369B	Slight where slope is 0 to 2 percent. Moderate where slope is 2 to 4 percent.	Slight

recreational development—Continued

Degree of limitation and soil features affecting use for—Continued			
Paths and trails	Golf fairways	Cottage, service, and utility buildings	Camp areas
Slight	Moderate where slope is 1 to 4 percent. Severe where slope is 4 to 7 percent: turf difficult to maintain in sloping areas.	Moderate if septic tank is not used. Severe if septic tank is used: moderate depth to bedrock hinders construction.	Slight where slope is 1 to 4 percent. Moderate where slope is 4 to 7 percent: moderate depth to bedrock.
Slight	Slight	Slight	Slight.
Slight	Slight	Slight	Slight.
Severe: subject to flooding; seasonal high water table near surface; sticky when wet.	Severe: subject to flooding; seasonal high water table near surface; turf easily damaged when wet.	Severe: subject to flooding; seasonal high water table near surface.	Severe: subject to flooding; seasonal high water table near surface; sticky when wet.
Slight	Slight	Slight; moderate where slope is 4 to 7 percent if septic tank is used.	Slight.
Moderate: sandy soil difficult to vegetate; lacks firm surface.	Severe: texture unfavorable for establishment of turf; low fertility; droughty.	Moderate: sandy soil difficult to vegetate; subject to blowing; rapid permeability; droughty.	Moderate: sandy soil difficult to vegetate; subject to blowing; lacks firm surface.
Slight where slope is 4 to 7 percent. Moderate where slope is 7 to 15 percent. Severe where slope is 15 to 30 percent.	Slight where slope of 4 to 7 percent is uneroded or moderately eroded. Moderate where slope of 4 to 7 percent is severely eroded and where slope of 7 to 15 percent is moderately eroded. Severe where slope of 7 to 15 percent is eroded and where slope is more than 15 percent.	Slight where slope is 4 to 7 percent if septic tank is not used. Moderate where slope is 4 to 7 percent if septic tank is used and where slope is 7 to 15 percent. Severe where slope is 15 to 30 percent.	Slight where slope is 4 to 7 percent. Moderate where slope is 7 to 15 percent. Severe where slope is 15 to 30 percent: eroded slopes difficult to vegetate.
Moderate: seasonal high water table; slippery and sticky when	Moderate: seasonal high water table; sticky when	Moderate if septic tank is not used; seasonal high water	Moderate: seasonal high water table; slow permea-

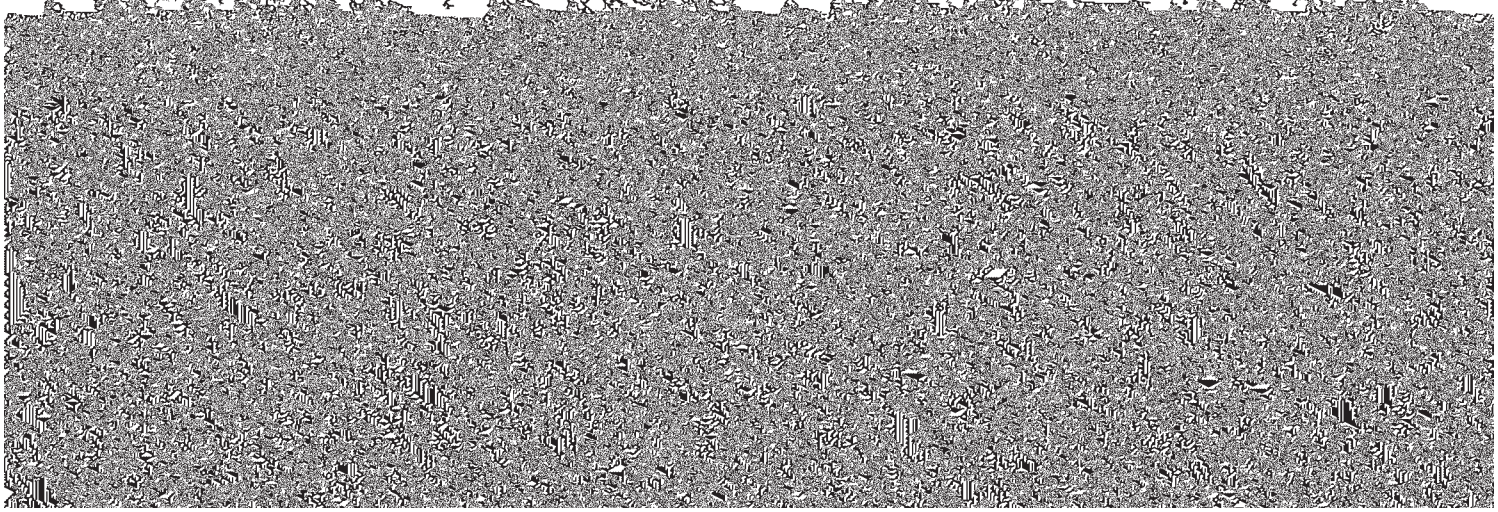


TABLE 7.—*Suitability for elements of*

[Mapping units in each wildlife group are listed in numerical order as they

Wildlife groups	Elements of wildlife habitat		
	Grain and seed crops	Grasses and legumes	Wild herbaceous upland plants
Group 1: 24A, 24B, 60B2, 105A, 105B, 134B, 145A, 145B, 145B2, 148A, 148B, 199A, 199B, 223B, 240A, 240B, 243A, 243B, 324B, 325A, 325B, 327B, 369A, 369B, 443A, 443B, 791A, 791B. Level to gently sloping, well-drained soils that have moderate to moderately rapid permeability; on uplands.	Good	Good	Good
Group 2: 59, 91A, 91B, 104, 149, R149, 189A, 189B, 192, 198, 219, 228A, 228B, 242, 442. Level and gently sloping, somewhat poorly drained soils that have moderate, moderately slow, and slow permeability; on uplands.	Good	Good	Good
Group 3: 67, 69, R69, 152, 235. Nearly level, poorly drained soils; on uplands.	Fair: wetness	Fair: wetness	Fair: wetness
Group 4: 82, 103, 107, 191, 206, 210, 304, 321, 330. Very poorly drained depressional soils and soils on bottom lands that are subject to flooding.	Poor: excessive wetness and flooding.	Poor: excessive wetness. Fair on better drained soils on bottom lands.	Poor: excessive wetness. Fair on better drained soils on bottom lands.
Group 5: 24C2, 60C2, 60C3, 88C, 91C2, 134C2, 134D2, 145C2, 148C2, 199C2, 223C2, 224C, 224C2, 224C3, 224D2, 243C2, 318C, 318D2, 324C2, 327C2, 443C2. Moderately sloping soils that are slightly to highly susceptible to erosion and strongly sloping soils that are slightly and moderately susceptible to erosion; on uplands.	Fair	Good	Good
Group 6: 25F, 25G, 60D3, 223D3, 224D3, 224F, 318F. Strongly sloping, severely eroded, moderately steep, steep, and very steep soils that are moderately susceptible to further erosion; on uplands.	Poor	Fair: erosion limits use.	Fair: erosion limits use.

by the Soil Conservation Service, Department of Defense, and other agencies, and the AASHO system (*1*) adopted by the American Association of State Highway Officials.

In the Unified system soils are classified according to particle-size distribution, plasticity, liquid limit, and organic-matter content. Soils are grouped in 15 classes. There are eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. Soils on the borderline between two classes are designated by symbols for both classes; for example, GP-GM.

The AASHO system is used to classify soils according to those properties that affect use in highway construction and maintenance. In this system, a soil is placed in one of seven basic groups ranging from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. In [illegible] soils of high bearing strength are the [illegible] described in AASHO Designation: T 99-57 (*1*). If the soil

the estimated classification, without group index numbers, is given in table 9 for all soils mapped in Kendall County.

Soil test data

Table 8 shows engineering test data for some of the major soil series in Kendall County. These tests were made to help evaluate the soils for engineering purposes. The engineering classifications given are based on data obtained by mechanical analyses and by tests to determine liquid limits and plastic limits obtained in the laboratories of the Illinois Division of Highways, Bureau of Materials, at Springfield. The mechanical analyses were made by the combined sieve and hydrometer methods.

Table 8 also shows data on the relationship between the moisture content and the density of the soil when compacted. These data were determined by the standard methods de-

wildlife habitat and kinds of wildlife
are in the "Guide to Mapping Units" at the back of this publication]

Elements of wildlife habitat—Continued			Kinds of wildlife		
Hardwoods	Wetland food and cover plants	Shallow-water developments	Openland	Woodland	Wetland
Good	Poor: too well drained.	Poor: too well drained.	Good	Good	Poor: too well drained.
Good	Fair: limited retention of water.	Fair: limited retention of water.	Good	Good	Fair: limited retention of water.
Fair: wetness	Good	Good	Fair: wetness	Fair: wetness	Good.
Poor: excessive wetness. Fair on better drained soils on bottom lands.	Good	Good	Poor: excessive wetness. Fair on better drained soils on bottom lands.	Poor: excessive wetness. Fair on better drained soils on bottom lands.	Good.
Good	Poor: too well drained.	Poor: too well drained.	Good	Good	Poor: too well drained.
Good	Poor: too well drained.	Poor: too well drained.	Fair: erosion limits use.	Good	Poor: too well drained.

Liquid limit and plasticity index indicate the effect of water on the strength and consistence of soil material. As the moisture content of a clayey soil is increased from a dry state, the material changes from a semisolid to a plastic. If the moisture content is further increased, the material changes from a plastic to a liquid. The plastic limit is the moisture content at which the soil material changes from the semisolid to plastic; and the liquid limit, from a plastic to a liquid. The plasticity index is the numerical difference between the liquid limit and the plastic limit. It indicates the range of moisture content within which a soil material is plastic.

that have limestone bedrock at a depth of 20 to 36 inches. Following are explanations of some of the columns in table 9.

Depth to seasonal high water table is the distance from the surface of the soil to the highest level that ground water reaches in the soil in most years.

Soil texture is described in table 9 in the standard terms used by the Department of Agriculture. These terms take into account the relative percentages of sand, silt, and clay in soil material that is less than 2 millimeters in diameter. "Loam," for example, is soil material that contains 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the soil contains gravel or other particles coarser

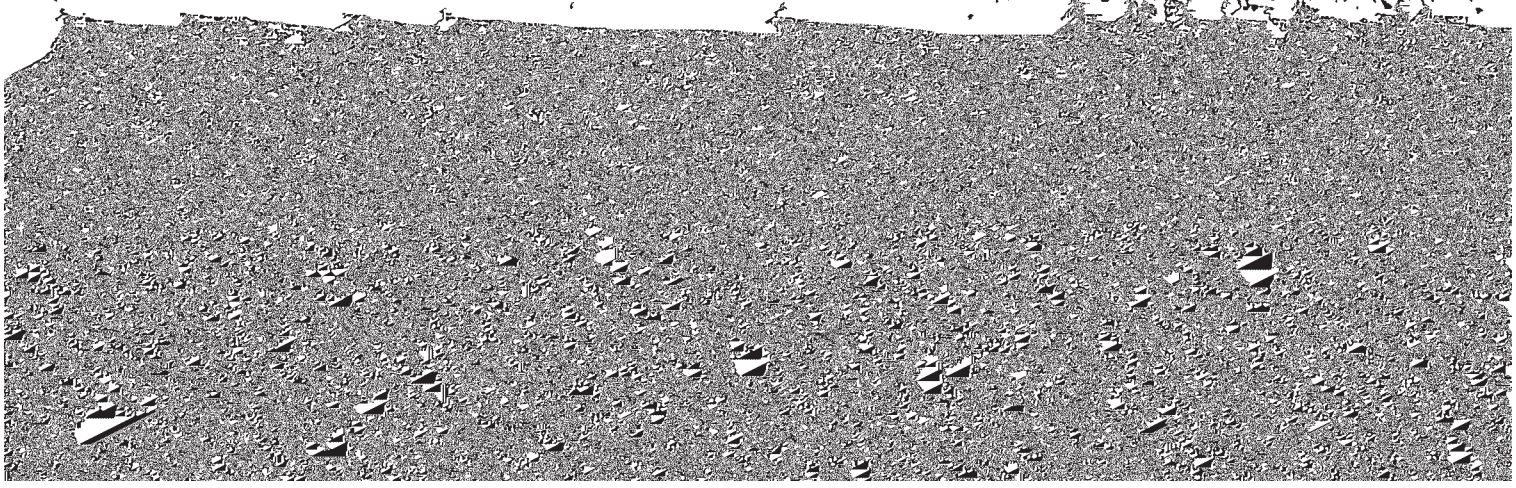
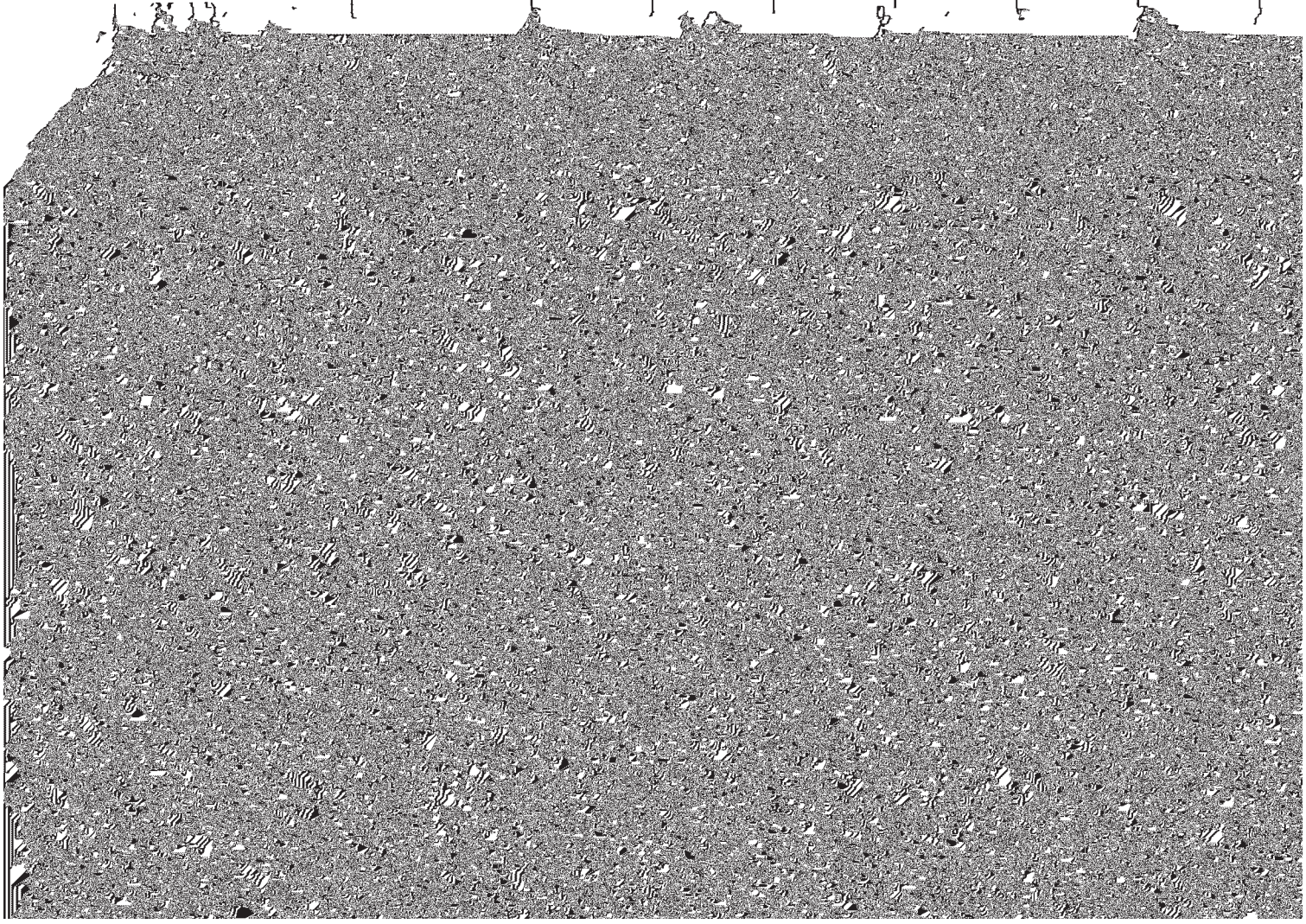


TABLE 8.—*Engineering*

[Tests made by Illinois Division of Highways,

Soil name and location	Parent material	Report no. 70–I11–047	Depth from surface	Moisture-density data[1]		Mechanical analysis[2]	
				Maximum dry density	Optimum moisture	Percentage passing sieve—	
						No. 4 (4.7 mm)	No. 10 (2.0 mm)
			Inches	*Pounds per cubic feet*	*Percent*		
Dodge silt loam:							
31 feet west and 1,240 feet south of NE. corner sec. 11, T. 36 N., R. 7 E. (Modal)	Loess over loam till.	1–1	0–10	102	19	100	100
		1–2	15–22	100	20	99	99
		1–3	33–50	127	11	91	86
Drummer silty clay:							
SE1/4SE1/4SW1/4SW1/4 sec. 21, T. 36 N., R. 8 E., 33 feet south of road center and 29 feet west of fence. (Modal)	Loess over loamy outwash.	3–1	0–9	89	22	100	100
		3–2	16–32	106	19	100	100
		3–3	38–55	126	11	87	84
Milford silty clay loam:							
NW1/4NE1/4NW1/4SW1/4 sec. 15, T. 35 N., R. 6 E., 98 feet south of highway center and 75 feet east of lane	Silty clay loam lakebed sediments.	2–1	3–13	82	30	100	100
		2–2	18–32	104	19	100	100
		2–3	42–64	125	11	87	83



test data

Bureau of Materials, Springfield]

Mechanical analysis[2]						Liquid limit	Plasticity index	Classification	
Percentage passing sieve—Continued		Percentage smaller than—						AASHO[3]	Unified[4]
No. 40 (0.42 mm)	No. 200 (0.074 mm)	0.05 mm	0.02 mm	0.005 mm	0.002 mm				
						Percent			
96	90	84	58	16	9	34	9	A–4(9)	ML
95	86	80	66	41	32	50	31	A–7–6(27)	CL
76	58	51	42	23	16	22	8	A–4(2)	CL
97	93	87	74	44	32	56	25	A–7–5(28)	MH
97	95	89	71	36	32	47	26	A–7–6(27)	CL
73	55	50	35	17	13	23	8	A–4(1)	CL
96	89	85	66	30	20	61	29	A–7–5(31)	MH
98	93	88	71	43	33	41	19	A–7–6(19)	CL
75	64	51	38	25	18	25	7	A–4(2)	CL
97	94	90	76	44	29	55	25	A–7–5(22)	MH
88	81	78	65	39	26	35	16	A–6(12)	CL
91	85	82	69	36	27	38	19	A–6(16)	CL

TABLE 9.—*Estimated soil properties*

[The symbol > means more than;

Soil series and map symbols	Depth to seasonal high water table	Depth from surface	Dominant USDA texture	Classification
				Unified
	Feet	*Inches*		
Barrington: 443A, 443B, 443C2	>3	0–13	Silt loam	ML or CL
		13–32	Silty clay loam and clay loam	CL
		32–66	Silt loam, sandy loam, and loamy sand.	ML or SM
Batavia: 105A, 105B	>3	0–15	Silt loam	CL or ML
		15–48	Silty clay loam and clay loam	CL
		48–70	Silt loam or fine sandy loam	ML or SM
Brenton:				
149	1–3	0–15	Silt loam	CL, ML, or OL
		15–50	Silty clay loam and clay loam	CL
		50–62	Stratified sandy loam and silt loam.	SM, SC, or CL
R149	1–3	0–12	Silt loam	CL or ML
		12–54	Silty clay loam to loam	CL
		54–60	Limestone bedrock [1]	
Bryce: 235	0–1	0–12	Silty clay	CH or MH
		12–32	Silty clay	CH
		32–62	Silty clay	CH or CL
Camden: 134B, 134C2, 134D2	>3	0–14	Silt loam	CL
		14–47	Silty clay loam	CL
		47–72	Sandy loam, loam, or silt loam	ML or SM
Cut and fill land: C.F. Properties too variable to be estimated.				
Del Rey: 192	1–3	0–10	Silt loam	ML or CL
		10–36	Silty clay to silty clay loam	CH or CL
		36–52	Silt loam, sandy loam, silty clay	CL or ML
Dodge: 24A, 24B, 24C2	>3	0–11	Silt loam	ML or CL
		11–35	Silty clay loam, clay loam, and loam.	CL or CH
		35–50	Loam	ML or CL
Dresden: 325A, 325B	>3	0–8	Silt loam	ML or CL
		8–27	Silty clay loam and clay loam	CL
		27–47	Gravel and sand	GP–GM, GP, SP, or SP–SM
Drummer: 152	0–1	0–12	Silty clay loam	CL, CH, or MH
		12–41	Silty clay loam	CL or CH
		41–58	Silt loam, clay loam, loam, or sandy loam.	SM, SC, CL, or ML
DuPage: 321	1–3	0–28	Silt loam and loam	ML
		28–38	Loam or sandy loam	ML or SM
		38–50	Loam, loamy sand, or sandy loam.	ML, CL, or SM
Elburn: 198	1–3	0–13	Silt loam	CL
		13–48	Silty clay loam and silt loam	CL
		48–65	Silt loam and sandy loam	ML or SM
Fox: 327B, 327C2	>3	0–13	Silt loam	ML or CL
		13–33	Silty clay loam and clay loam	CL
		33–40	Gravel and sand	GP or SP, GP–GM, or SP–SM
Gravel pits: G.P. Properties too variable to be estimated.				

significant to engineering

the symbol < means less than]

Classification—Continued	Percentage less than 3 inches passing sieve			

TABLE 9.—*Estimated soil properties*

Soil series and map symbols	Depth to seasonal high water table	Depth from surface	Dominant USDA texture	Classification
				Unified
	Feet	*Inches*		
Harpster: 67	0–1	0–14	Silty clay loam	CL or CH

significant to engineering—Continued

Classification—Continued	Percentage less than 3 inches passing sieve—			Permeability	Available water capacity	Shrink-swell potential
AASHO	No. 4 (4.7 mm)	No. 10 (2.0 mm)	No. 200 (0.074 mm)			
				Inches per hour	*Inch per inch of soil*	
A–7	95–100	95–100	70–100	0.6–2.0	0.19–0.23	Moderate.
A–7 or A–6	95–100	80–100	65–100	0.6–2.0	0.16–0.19	Moderate.
A–2, A–4, or A–6	90–100	80–100	30–100	0.6–2.0	0.10–0.19	Low.
A–4 or A–6	95–100	90–100	70–90	0.6–2.0	0.17–0.20	Low.
A–4 or A–6	90–100	90–100	60–80	0.6–2.0	0.10–0.16	Low.
(1)	(1)	(1)	(1)	2.0–6.0	>0.25	Low.
A–6	100	90–100	90–100	0.6–2.0	0.20–0.25	Low.
A–6 or A–7	95–100	90–100	85–100	0.6–2.0	0.18–0.20	Moderate.
A–2, A–4, or A–6	90–100	80–90	25–85	0.6–6.3	0.14–0.18	Low.
A–6	95–100	90–100	80–90	0.2–0.6	0.20–0.22	Moderate.
A–6	95–100	90–100	75–90	0.2–0.6	0.18–0.20	Moderate.
A–2 or A–4	90–100	85–95	30–60	0.6–2.0	0.14–0.18	Moderate to low.
A–2 or A–3	95–100	90–100	0–25	6.3–20	0.08–0.14	Low.
A–6 or A–4	100	95–100	85–100	0.6–2.0	0.20–0.22	Low.
A–6 or A–7	95–100	90–100	65–85	0.6–2.0	0.16–0.18	Moderate.
A–4 or A–6	95–100	85–90	60–75	0.2–1.0	0.14–0.18	Low.
(1)	(1)	(1)	(1)	0.6–6.3	>0.25	Low.
A–6 or A–7	100	95–100	90–100	0.6–2.0	0.20–0.25	Low.
A–7 or A–6	95–100	90–100	70–95	0.6–2.0	0.16–0.19	Moderate.
A–4 or A–6	95–100	85–95	60–80	0.2–1.0	0.14–0.18	Low.
A–4	100	95–100	65–90	0.6–2.0	0.16–0.20	Low.
A–6	80–100	80–100	60–90	0.6–2.0	0.15–0.19	Low.
A–2 or A–1	70–80	30–45	0–10	6.3–20	0.02–0.04	Low.
A–6 or A–7	100	95–100	90–100	0.6–2.0	0.22–0.25	Low.
A–7	100	95–100	90–100	0.2–0.6	0.15–0.19	Moderate.
A–6 or A–7	95–100	90–100	80–90	0.2–2.0	0.14–0.19	Low.
A–7	95–100	95–100	90–100	0.6–2.0	0.19–0.23	High.
A–7	95–100	95–100	90–100	0.2–0.6	0.11–0.13	High.
A–7, A–6, or A–4	85–100	80–100	60–90	0.2–0.6	0.14–0.19	Moderate to high.
A–7	95–100	95–100	90–100	0.6–2.0	0.19–0.23	High.
A–7	95–100	95–100	90–100	0.2–0.6	0.19–0.21	High.
A–6 or A–7	100	95–100	90–100	0.6–2.0	0.20–0.25	Low.
A–6 or A–7	100	90–100	60–90	0.6–2.0	0.18–0.20	Moderate.
A–2 or A–4	95–100	90–100	30–80	0.6–2.0	0.12–0.18	Low.
A–4 or A–6	90–100	80–90	50–90	0.6–2.0	0.16–0.20	Moderate.
A–4 or A–6	95–100	95–100	80–95	0.6–2.0	0.20–0.25	Low.
A–6 or A–7	95–100	90–100	60–90	0.6–2.0	0.18–0.20	Moderate.
A–4, A–2, or A–6	90–100	80–95	30–70	0.6–2.0	0.14–0.18	Low.
A–6	95–100	95–100	90–100	0.2–0.6	0.20–0.24	Low.
A–7	95–100	90–100	85–100	<0.06	0.09–0.13	Moderate.
A–7	95–100	90–100	85–100	<0.06	0.08–0.12	Moderate.
A–7	95–100	90–100	85–100	0.6–2.0	0.19–0.23	Moderate.
A–7 or A–6	95–100	90–100	80–100	0.2–0.6	0.18–0.20	High.
A–6 or A–7	95–100	90–100	80–100	0.2–0.6	0.18–0.20	Moderate.
A–6 or A–4	100	100	90–100	0.6–2.0	0.20–0.25	Low.
A–6	100	100	75–100	0.6–2.0	0.19–0.21	Moderate.
A–4 or A–2	90–100	90–100	25–60	0.6–6.3	0.10–0.14	Low.

TABLE 9.—*Estimated soil properties*

Soil series and map symbols	Depth to seasonal high water table	Depth from surface	Dominant USDA texture	Classification
				Unified
	Feet	*Inches*		
Plattville: 240A, 240B	>3	0–12	Silt loam	CL or ML
		12–44	Silty clay loam	CL
		44	Limestone bedrock.[1]	
Proctor: 148A, 148B, 148C2	>3	0–14	Silt loam	CL or ML
		14–53	Silty clay loam and clay loam	CL
		53–60	Stratified sandy loam, sand, and silt loam.	SM, SC, or CL
Ripon: 324B, 324C2	>3	0–11	Silt loam	ML
		11–29	Silty clay loam and clay loam	CL
		29	Limestone bedrock.[1]	
Rush: 791A, 791B	>3	0–13	Silt loam	ML or CL
		13–45	Silty clay loam to gravelly clay loam.	CL
		45–52	Gravel and sand	GP, SP, GP-GM, or SP-SM
St. Charles: 243A, 243B, 243C2	>3	0–10	Silt loam	CL or ML
		10–58	Silty clay loam and clay loam	CL
		58–64	Loam to sandy loam	ML or SM
Sawmill: 107	0–1	0–30	Silty clay loam	CL, CH, or OH
		30–57	Silty clay loam	CL or CH
		57–73	Sandy loam, loam, and clay loam.	SM or CL
Saybrook: 145A, 145B, 145B2, 145C2	>3	0–11	Silt loam	CL or OL
		11–45	Silty clay loam and silt loam	CL
		45–57	Silt loam and loam	CL or ML
Sparta: 88C	>3	0–11	Loamy fine sand	SM
		11–35	Loamy sand and sand	SP-SM
		35–60	Sand	SP
Strawn: 224C, 224C2, 224C3, 224D2, 224D3, 224F.	>3	0–5	Silt loam	ML or CL
		5–16	Silty clay loam or clay loam	CL
		16–50	Loam or silt loam	ML or CL
Swygert: 91A, 91B, 91C2	1–3	0–13	Silty clay loam	CL or OL
		13–41	Silty clay	CH
		41–66	Silty clay and clay	CH
Thorp: 206	(3)	0–15	Silt loam	CL or OL
		15–42	Silty clay loam	CL
		42–97	Sandy loam, loam, or silt loam	SM or CL
Varna: 223B, 223C2, 223D3	>3	0–13	Silt loam	CL or ML
		13–35	Heavy silty clay loam and silty clay.	CL or CH
		35–50	Silty clay loam	CL
Virgil: 104	1–3	0–14	Silt loam	CL
		14–62	Silty clay loam and clay loam	CL
		62–80	Silt loam to sandy loam	ML or SM
Waupecan: 369A, 369B	>3	0–12	Silt loam	CL
		12–43	Silty clay loam to sandy loam	CL
		43–52	Loamy sand, sand, and gravel	ML to GP or SP

significant to engineering—Continued

Classification—Continued	Percentage less than 3 inches passing sieve—			Permeability	Available water capacity	Shrink-swell potential
AASHO	No. 4 (4.7 mm)	No. 10 (2.0 mm)	No. 200 (0.074 mm)			
				Inches per hour	*Inch per inch of soil*	
A–6 or A–4	100	95–100	90–95	0.6–2.0	0.20–0.25	Low.
A–6 or A–7	95–100	95–100	85–95	0.6–2.0	0.18–0.20	Moderate.
A–6 or A–4	100	95–100	80–90	0.6–2.0	0.20–0.25	Low.
A–6 or A–7	95–100	90–100	60–90	0.6–2.0	0.18–0.20	Moderate.
A–2, A–4, or A–6	90–100	80–95	30–75	0.6–6.3	0.10–0.14	Low.
A–6	100	95–100	70–90	0.6–2.0	0.16–0.20	Low to moderate.
A–6 or A–7	90–100	85–95	60–80	0.6–2.0	0.16–0.20	Moderate.
A–4 or A–6	100	95–100	85–95	0.6–2.0	0.20–0.25	Low.
A–6	90–100	80–100	60–90	0.6–2.0	0.16–0.19	Moderate.
A–1	40–80	30–70	0–10	6.3–20	0.02–0.04	Low.
A–6 or A–4	100	90–100	90–100	0.6–2.0	0.20–0.25	Low.
A–6	95–100	90–100	85–100	0.6–2.0	0.18–0.20	Moderate.
A–2 or A–4	90–100	80–90	25–60	0.6–6.3	0.10–0.14	Low.
A–7	100	95–100	90–100	0.6–2.0	0.19–0.23	Moderate.
A–6 or A–7	95–100	90–100	80–100	0.6–2.0	0.19–0.21	Moderate.
A–4, A–6, or A–2	95–100	90–100	30–80	0.6–2.0	0.12–0.16	Low.
A–6	100	95–100	90–100	0.6–2.0	0.20–0.25	Low.
A–7 or A–6	95–100	90–100	70–95	0.6–2.0	0.16–0.19	Moderate.
A–4 or A–6	95–100	85–95	60–75	0.2–2.0	0.14–0.18	Low.
A–2	100	100	20–25	2.0–6.3	0.10–0.12	Low.
A–3	100	100	5–10	>20	0.06–0.08	Low.
A–3	100	100	1–4	>20	0.05–0.07	Low.
A–4 or A–6	100	90–100	80–100	0.6–2.0	0.20–0.25	Low.
A–6 or A–7	95–100	90–100	70–95	0.6–2.0	0.16–0.18	Moderate.
A–4 or A–6	95–100	85–95	55–75	0.6–2.0	0.14–0.18	Low.
A–6 or A–7	95–100	95–100	90–100	0.2–0.6	0.19–0.23	Low to moderate.
A–7	95–100	90–100	85–100	0.06–0.2	0.11–0.13	High.
A–7	95–100	90–100	85–100	0.06–0.2	0.10–0.12	High.
A–6 or A–7	95–100	90–100	80–90	0.6–2.0	0.22–0.24	Low.
A–6 or A–7	95–100	90–100	75–90	0.06–0.2	0.18–0.20	Moderate.
A–2, A–4, or A–6	90–100	85–95	25–90	0.6–2.0	0.06–0.12	Low.
A–6 or A–7	100	95–100	80–95	0.6–2.0	0.20–0.24	Low.
A–7 or A–6	95–100	90–100	80–95	0.2–0.6	0.15–0.21	Moderate.
A–7 or A–6	95–100	90–100	80–95	0.2–0.6	0.18–0.20	Low.
A–6	100	100	90–100	0.6–2.0	0.22–0.24	Low.
A–6 or A–7	100	100	95–100	0.6–2.0	0.16–0.19	Moderate.
A–4	90–100	60–90	40–60	0.6–6.3	0.14–0.18	Low.
A–6	100	100	85–95	0.6–2.0	0.22–0.24	Low.
A–6 or A–7	90–100	95–100	50–80	0.6–2.0	0.16–0.19	Moderate.
A–1	40–80	40–90	5–15	6.3–20	0.02–0.04	Low.

[3] Water table is at or near surface.

TABLE 10.—*Interpretations of*

Soil series and map symbols	Degree and kind of limitation for—				Suitability as a source of—
	Septic tank absorption fields	Sewage lagoons	Shallow excavations	Dwellings without basements	Sand and gravel
Barrington: 443A, 443B, 443C2.	Slight	Severe: porous material below depth of 3 to 4 feet.	Slight	Slight	Poor above depth of 50 inches, poor to fair below that depth: fines in some places.
Batavia: 105A, 105B	Slight	Severe: porous material below depth of 4 feet in many areas.	Slight	Slight	Fair: excessive fines in lower part of profile.
Brenton: 149, R149	Severe: seasonal high water table. Moderate in places.	Severe: porous material below depth of 3 to 4 feet; high water table; rock at depth of 4 to 5 feet in R149.	Severe: sidewalls unstable in some horizons below depth of 3 feet; high water table.	Moderate: seasonal high water table; subject to frost heave; rock at depth of 4 to 5 feet in R149.	Poor above depth of 50 inches, poor to fair below that depth: fines in some places; limestone at depth of 4 to 5 feet in R149.
Bryce: 235	Severe: high water table; slow permeability.	Severe: high water table.	Severe: fine textured; high water table.	Severe: high water table; high clay content; slow water runoff.	Not suitable
Camden: 134B, 134C2, 134D2.	Slight for 134B and 134C2. Moderate for 134D2: slope.	Severe: porous material below depth of 3 to 4 feet; slope.	Slight for 134B and 134C2. Moderate for 134D2: slope.	Slight for 134B and 134C2. Moderate for 134D2: slope.	Poor above depth of 50 inches. Fair below that depth: fines in some places.
Cut and fill land: C.F. No interpretations made; properties too variable.					
Del Rey: 192	Severe: seasonal high water table; slow permeability.	Severe: seasonal high water table.	Severe: high clay content; high water table.	Moderate: seasonal high water table; subject to frost heave.	Not suitable
Dodge: 24A, 24B, 24C2	Slight	Moderate: hazard of seepage; slope if more than 2	Slight	Slight	Not suitable

engineering properties of soils

Suitability as a source of—Continued	Soil factors affecting—				
Topsoil	Pond reservoir areas	Embankments, dikes, and levees	Drainage of cropland	Irrigation	Terraces and diversions
Fair: limited depth of good surface material.	Seepage hazard; too permeable below depth of 3 feet in most places.	Fair stability and compaction characteristics; impervious when compacted; medium volume change.	Good natural drainage.	Moderate intake rate; moderate permeability; erosion hazard in sloping areas.	No limitations, except topography in some places.
Fair: limited depth of good surface material.	Seepage hazard; too permeable below depth of 4 feet in many areas.	Fair stability and compaction characteristics; impervious when compacted; medium volume change.	Good natural drainage.	Moderate intake rate; moderate permeability; high available water capacity.	No limitations.
Fair: limited depth of good surface material.	Seepage hazard; too permeable below depth of 3 feet in most places; limestone at depth of 4 to 5 feet in R149.	Fair stability and compaction characteristics; impervious when compacted; medium volume change.	Moderate permeability; water table at depth of 1 foot to 3 feet; subsurface needs drainage tile in places.	Moderate intake rate; moderate permeability; high available water capacity.	Not needed because of level topography.
Poor: high clay content; poorly drained.	Natural high water table for dugout ponds; sandy strata below depth of 5 feet in places.	Poor stability and compaction characteristics; impervious when compacted; high volume change.	Slow permeability; standing water in wet seasons; use of tile questionable.	Slow intake rate; slow permeability; high available water capacity.	Not needed because of level topography.

TABLE 10.—*Interpretations of engineering*

Soil series and map symbols	Degree and kind of limitation for—				Suitability as a source of—
	Septic tank absorption fields	Sewage lagoons	Shallow excavations	Dwellings without basements	Sand and gravel
Drummer: 152	Severe: high water table.	Severe: high water table.	Severe: sidewalls unstable below depth of 3 feet; high water table.	Severe: high water table; slow runoff.	Poor above depth of 50 inches. Fair below that depth. Good below depth of 50 inches in areas north of river.
DuPage: 321	Severe: subject to flooding.	Severe: subject to flooding.	Severe: subject to flooding; sidewalls unstable.	Severe: subject to flooding.	Not suitable
Elburn: 198	Severe: seasonal high water table	Severe: porous material below depth	Severe: sidewalls unstable in some	Moderate: seasonal high water table;	Poor to not suitable: may have sandy

properties of soils—Continued

Suitability as a source of—Continued	Soil factors affecting—				
Topsoil	Pond reservoir areas	Embankments, dikes, and levees	Drainage of cropland	Irrigation	Terraces and diversions
Poor: poorly drained	Natural high water table for dugout ponds; too porous below depth of 5 feet in many areas.	Fair stability and compaction characteristics; impervious when compacted; medium volume change.	Moderate permeability; standing water in wet seasons; tile drainage is satisfactory with good outlets.	Moderate intake rate; moderate permeability; high available water capacity.	Not needed because of level topography.
Good for surface layer	Hazard of seepage; very rapid permeability below depth of 3 feet.	Poor resistance to piping; sandy material; rapid seepage.	Moderate permeability; subject to flooding.	Moderate intake rate; moderate permeability; high available water capacity.	Not needed because of topography.
Good for surface layer	Hazard of seepage; very rapid permeability below depth of 4 feet in many areas.	Fair stability and compaction characteristics; impervious when compacted; medium volume change.	Moderate permeability; water table at depth of 1 to 3 feet; subsurface drainage with tile where needed.	Moderate intake rate; moderate permeability; high available water capacity.	Not needed because of level topography.
Poor: very limited depth of good surface material	Material too porous to hold water.	Sandy and gravelly material; poor resistance to piping;	Good natural drainage.	Moderate intake rate; moderately rapid permea-	Sandy and gravelly substratum; difficult to vegetate;

TABLE 10.—*Interpretations of engineering*

Soil series and map symbols	Degree and kind of limitation for—				Suitability as a source of—
	Septic tank absorption fields	Sewage lagoons	Shallow excavations	Dwellings without basements	Sand and gravel
Landes: 304	Severe: subject to flooding.	Severe: subject to flooding; very porous material.	Severe: subject to flooding; sidewalls unstable.	Severe: subject to flooding.	Fair for sand: variable thicknesses; contains fines in some places. Not suitable for gravel.
La Rose: 60B2, 60C2, 60C3, 60D3.	Moderate: moderate permeability.	Moderate for 60B2, 60C2, and 60C3: slope; moderate permeability. Severe for 60D3: slope.	Slight for 60B2, 60C2, and 60C3. Moderate for 60D3: slope.	Moderate frost action and shrink-swell potential.	Not suitable
Lena: 210	Severe: flooding and ponding are common.	Severe: very unsuitable material; very high water table.	Severe: unstable material; very high water table.	Severe: very unsuitable material; hazard of wetness.	Not suitable
Lisbon: 59	Severe: seasonal high water table. Moderate in places.	Severe: seasonal high water table; hazards of seepage in places.	Severe: high water table.	Moderate: seasonal high water table; hazard of frost heave.	Not suitable
Lorenzo: 318C, 318D2, 318F.	Moderate for 318C and 318D2: slope. Severe for 318F: slope.	Severe: very porous material below depth of 2 feet.	Slight for 318C. Moderate for 318D2: unstable trenches. Severe for 318F: slope.	Slight for 318C. Moderate for 318D2. Severe for 318F: slope.	Good: variable thickness and quality.
Martinton: 189A, 189B	Severe: seasonal high water table; moderately slow permeability.	Severe: seasonal high water table.	Severe: high clay content; seasonal high water table.	Moderate: seasonal high water table; subject to frost heave.	Not suitable
Milford: 69, R69	Severe: seasonal high water table; moderately slow permeability.	Severe: high water table.	Severe: high water table; high clay content.	Severe: hazard of wetness; slow runoff.	Not suitable
Millbrook: 219	Severe: seasonal high water table. Moderate in places.	Severe: porous material below depth of 3 to 4 feet; high water table.	Severe: sidewalls unstable in some horizons below depth of 3 feet; high water table.	Moderate: seasonal high water table; hazard of frost heave.	Not suitable
Millington: 82	Severe: subject to flooding.	Severe: subject to flooding.	Severe: subject to flooding; sidewalls unstable.	Severe: subject to flooding; high water table.	Not suitable
Mundelein: 442	Severe: seasonal high water table. Moderate in places.	Severe: porous material at depth of 3 to 4 feet; high water table.	Severe: sidewalls unstable in some horizons below depth of 3 feet; high water table.	Moderate: seasonal high water table; hazard of frost heave.	Not suitable

properties of soils—Continued

Suitability as a source of—Continued	Soil factors affecting—				
Topsoil	Pond reservoir areas	Embankments, dikes, and levees	Drainage of cropland	Irrigation	Terraces and diversions
Good for surface layers.	Hazards of seepage; too permeable.	Poor resistance to piping; sandy material; rapid	Rapid permeability; some areas need leveling	Rapid intake rate; low available water capacity	Not needed because of level topography

TABLE 10.—*Interpretations of engineering*

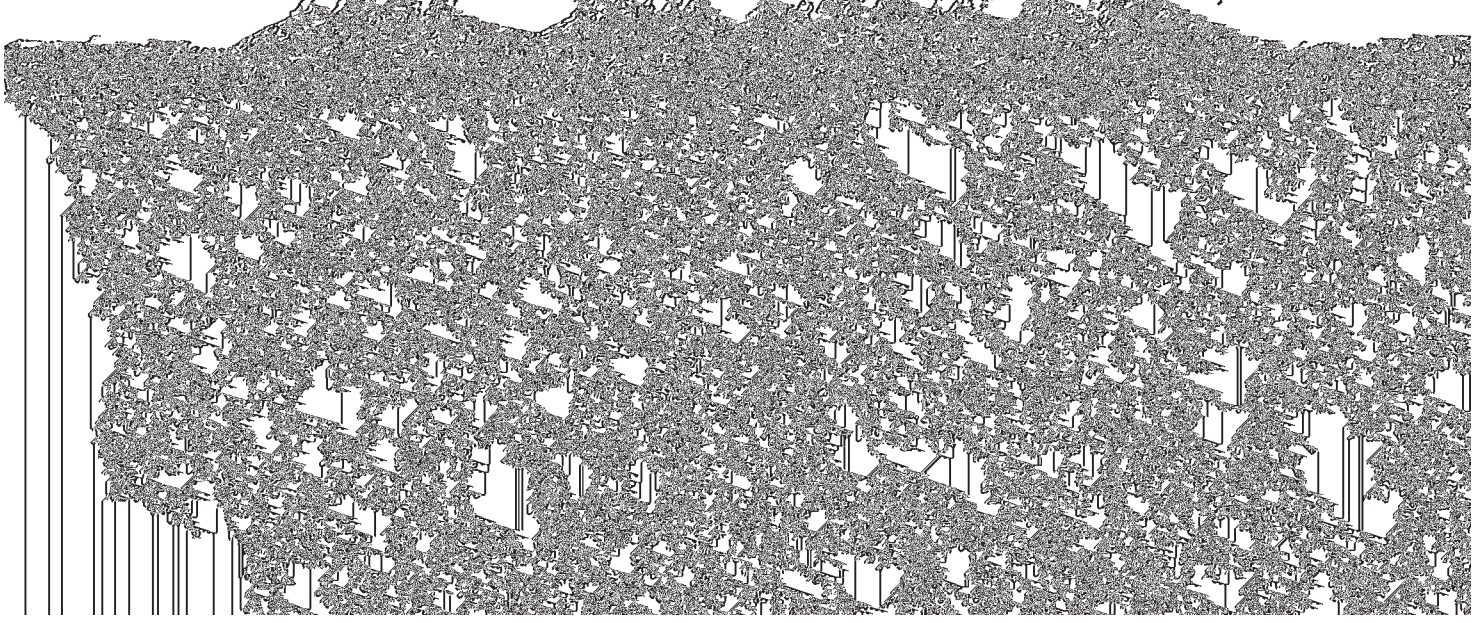
Soil series and map symbols	Degree and kind of limitation for—				Suitability as a source of—
	Septic tank absorption fields	Sewage lagoons	Shallow excavations	Dwellings without basements	Sand and gravel
Nappanee: 228A, 228B	Severe: very slow permeability; seasonal high water table.	Severe: seasonal high water table. Moderate in places.	Severe: high clay content; seasonal high water table.	Severe: seasonal high water table; high clay content.	Not suitable
Peotone: 330	Severe: high water table; subject to ponding.	Severe: high water table; subject to ponding.	Severe: high water table; high clay content.	Severe: high water table; subject to frequent ponding.	Not suitable
Plano: 199A, 199B, 199C2	Slight	Severe: porous material below depth of 4 feet in many areas.	Slight	Slight	Poor to not suitable
Plattville: 240A, 240B	Moderate: bedrock at depth of 3 to 5 feet; risk of polluting nearby water supply.	Moderate: bedrock at depth of 3 to 5 feet; risk of polluting nearby water supply.	Moderate: bedrock at depth of 3 to 5 feet.	Moderate: bedrock at depth of 3 to 5 feet.	Not suitable
Proctor: 148A, 148B, 148C2.	Slight	Severe: porous material below depth of 3 to 4 feet.	Slight	Slight	Poor for sand below depth of 50 inches: contains fines. Not suitable for gravel.
Ripon: 324B, 324C2	Severe: bedrock at depth of 20 to 40 inches; risk of polluting nearby water supply.	Severe: bedrock at depth of 20 to 40 inches.	Severe: bedrock at depth of 20 to 40 inches.	Severe: bedrock at depth of 20 to 40 inches.	Not suitable
Rush: 791A, 791B	Slight: risk of polluting nearby water supply.	Severe: very porous material below depth of 4 feet.	Moderate: sidewalls unstable below depth of 4 feet.	Slight	Good: variable thickness and quality.
St. Charles: 243A, 243B, 243C2.	Slight	Severe: porous material below depth of 4 feet in many areas.	Slight	Slight	Not suitable
Sawmill: 107	Severe: subject to flooding.	Severe: subject to flooding.	Severe: subject to flooding; high water table.	Severe: subject to flooding.	Not suitable
Saybrook: 145A, 145B, 145B2, 145C2.	Moderate: permeability 45 to 60 minutes per inch.	Moderate where slope is more than 2 percent.	Moderate: shrink-swell potential; plasticity index is more than 15.	Slight	Not suitable

properties of soils—Continued

Suitability as a source of—Continued	Soil factors affecting—				
Topsoil	Pond reservoir areas	Embankments, dikes, and levees	Drainage of cropland	Irrigation	Terraces and diversions
Poor: very limited depth of good surface material.	Features generally favorable; unfavorable watershed characteristics.	Poor stability and compaction characteristics; impervious when compacted; high volume change.	Very slow permeability; water table at depth of 1 to 3 feet; slow to dry.	Slow intake rate; very slow permeability; moderate available water capacity.	Not needed because of level topography.
Poor: very poorly drained; high clay content.	Features generally favorable; high water table for dugout ponds.	Poor to fair stability and compaction characteristics; impervious when compacted; high volume change.	Moderately slow permeability; subject to ponding in wet seasons; drainage outlets inadequate.	Moderate intake rate; moderately slow permeability; very high available water capacity.	Not needed because of level topography.
Fair: limited depth of good surface layer.	Hazard of seepage; very rapid permeability below depth of 4 feet in many areas.	Fair stability and compaction characteristics; impervious when compacted; medium volume change.	Good natural drainage.	Moderate intake rate; moderate permeability; high available water capacity.	Slight limitations because of erosion hazard.
Fair: limited depth of good surface layer.	Features generally unfavorable because of bedrock.	Fair stability and compaction characteristics; impervious when compacted; medium volume change.	Good natural drainage.	Moderate intake rate; moderate permeability; high available water capacity.	No limitations, except that bedrock at depth of 3 to 5 feet limits the depth of cuts.
Fair: limited depth of good surface material.	Hazard of seepage; very rapid permeability below depth of 3 feet in most areas.	Fair stability and compaction characteristics; impervious when compacted; medium volume change.	Good natural drainage.	Moderate intake rate; moderate permeability; erosion hazard in sloping areas.	No limitations, except for erosion in some areas.
Fair: limited depth of good surface layer.	Features unfavorable because of shallowness to bedrock.	Fair stability and compaction characteristics; impervious when compacted; medium volume change.	Good natural drainage.	Moderate intake rate; moderate permeability; moderate available water capacity.	Very limited use because of shallow depth to bedrock.
Fair: limited depth of good surface material.	Material too porous to hold water.	Sandy and gravelly material below depth of 4 feet; poor resistance to piping; rapid seepage.	Good natural drainage.	Moderate intake rate; moderate permeability; high available water capacity.	Not needed because of moderate permeability and topography.
Fair: limited depth of good surface material.	Hazard of seepage; very rapid permeability below depth of 4 feet in many areas.	Fair stability and compaction characteristics; medium volume change.	Good natural drainage.	Moderate intake rate; moderate permeability; high available water capacity.	Erosion hazard in sloping areas.
Fair: sticky when wet----	Features generally favorable for dug-	Poor to fair stability and com-	Moderate permeability; subject to	Moderate intake rate; moderately	Not needed because of level topog-

TABLE 10.—*Interpretations of engineering*

Soil series and map symbols	Degree and kind of limitation for—				Suitability as a source of—
	Septic tank absorption fields	Sewage lagoons	Shallow excavations	Dwellings without basements	Sand and gravel
Sparta: 88C	Moderate: risk of polluting nearby water supply.	Severe: very porous material.	Moderate: loose sandy material; side slopes unstable.	Slight	Good for sand. Not suitable for gravel.
Strawn: 224C, 224C2, 224C3, 224D2, 224D3, 224F.	Severe for 224F: slope. Moderate for other units: moderate permeability.	Moderate for 224C, 224C2, and 224C3: moderate permeability; slope. Severe for 224D2, 224D3, and 224F: slope.	Slight for 224C, 224C2, and 224C3. Moderate for 224D2 and 224D3: moderate permeability; slope. Severe for 224F: slope.	Slight for 224C, 224C2, and 224C3. Moderate for 224D2, 224D3, and 224F: slope.	Not suitable
Swygert: 91A, 91B, 91C2	Severe: slow permeability; seasonal high water table.	Severe: seasonal high water table.	Severe: high clay content; seasonal high water table.	Severe: seasonal high water table; high clay content.	Not suitable
Thorp: 206	Severe: very high water table; subject to ponding.	Severe: high water table; subject to ponding.	Severe: high water table; unstable layers below depth of 3 feet.	Severe: very high water table; subject to ponding.	Fair: poor above depth of 50 inches. Fair to poor below that depth.
Varna: 223B, 223C2, 223D3.	Severe: moderately slow permeability.	Moderate for 223B and 223C2: slope. Severe for 223D3: slope.	Slight for 223B and 223C2. Moderate for 223D3: slope.	Moderate: high clay content.	Not suitable
Virgil: 104	Severe: seasonal high water table. Moderate in	Severe: porous material below depth of 4 feet; high	Severe: sidewalls unstable in some places below depth	Moderate: seasonal high water table; hazard of frost	Not suitable



properties of soils—Continued

Suitability as a source of—Continued	Soil factors affecting—				
Topsoil	Pond reservoir areas	Embankments, dikes, and levees	Drainage of cropland	Irrigation	Terraces and diversions
Poor: too sandy; low available water capacity.	Material too porous to hold water.	Sandy material; rapid seepage; poor resistance to piping.	Good natural drainage.	Very rapid intake rate; rapid permeability; low available water capacity.	Not needed because of very rapid permeability.
Poor: very limited depth of good surface material.	Features generally favorable; sites that have good topography are limited.	Good to fair stability and compaction characteristics; impervious when compacted; medium volume change.	Good natural drainage.	Moderate intake rate; moderate permeability; erosion hazard in sloping areas.	Difficult to vegetate; hazard of erosion.
Poor: limited depth of good surface material; high clay content.	Features generally favorable for dugout ponds; sandy strata below depth of 5 feet in places.	Poor stability and compaction characteristics; impervious when compacted; high volume change.	Slow permeability; water table at depth of 1 to 3 feet; slow to dry.	Slow intake rate; slow permeability; high available water capacity.	Not needed because of level topography.
Poor: poorly drained; limited depth of good	Natural high water table for dugout	Fair stability and compaction char-	Slow permeability; standing water in	Slow intake rate; slow permea-	Not needed because of level topog-

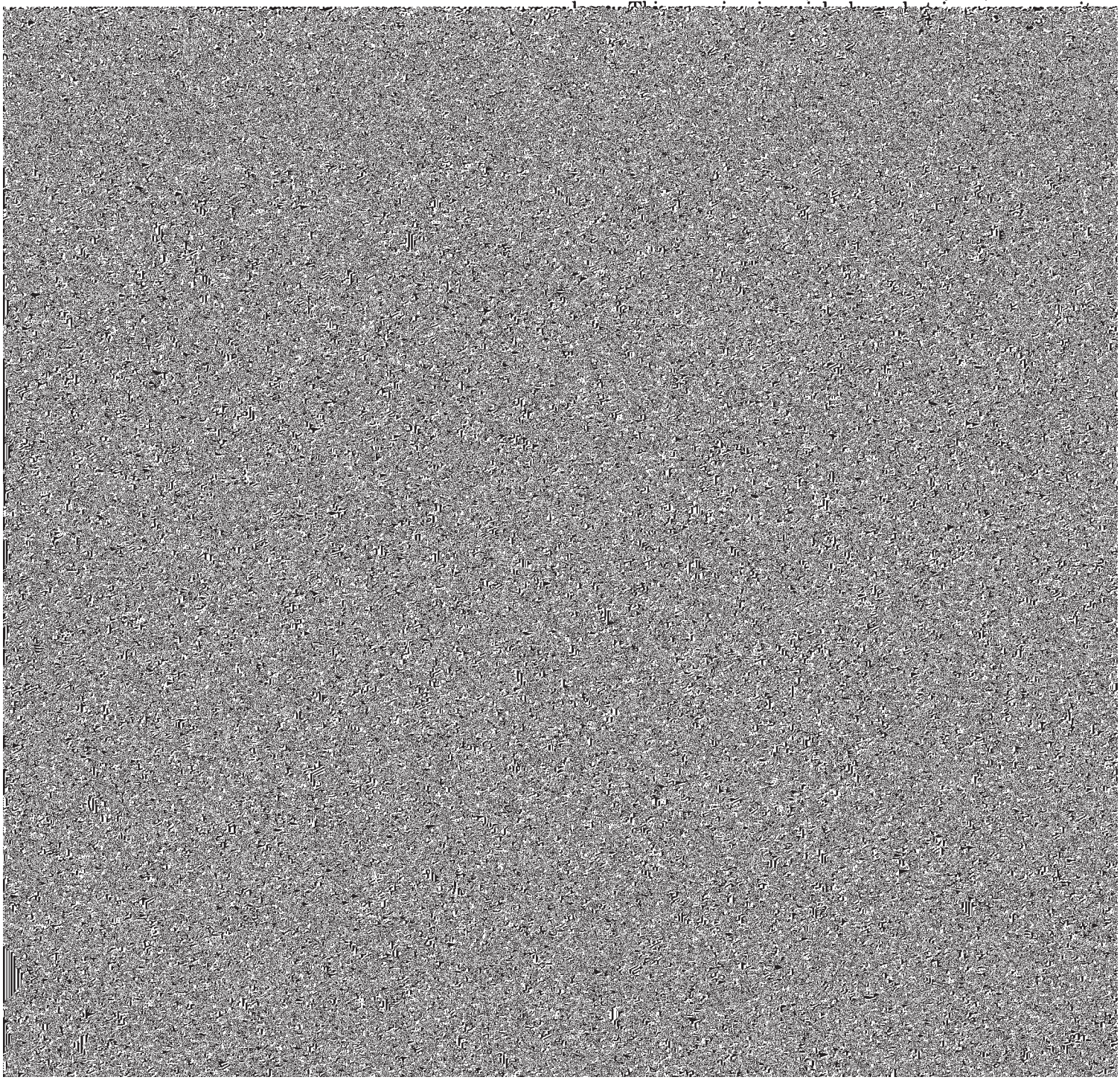
of water; amount of water held available to plants; and need for drainage, or depth to water table or bedrock.

Terraces and diversions are embankments, or ridges, constructed across the slope to intercept runoff so that it soaks into the soil or flows slowly to a prepared outlet. Features that affect suitability of a soil for terraces are uniformity and degree of slope; depth to bedrock or other unfavorable material; presence of stones; permeability; and resistance to water erosion, soil slipping, and soil blowing. A soil suitable for these structures provides outlets for runoff and is not difficult to vegetate.

importance of each factor differs from place to place, and each modifies the effect of the other four. In some places one factor may be dominant.

Parent material

Parent material in Kendall County is mainly glacial in origin and Wisconsinan in age. The parent materials of glacial origin are till, outwash, and lacustrine or lakebed. The alluvium of the bottom lands and the organic soils are mainly postglacial. In most places, and in varying amounts, the soils of Kendall County are covered by deposits of silt



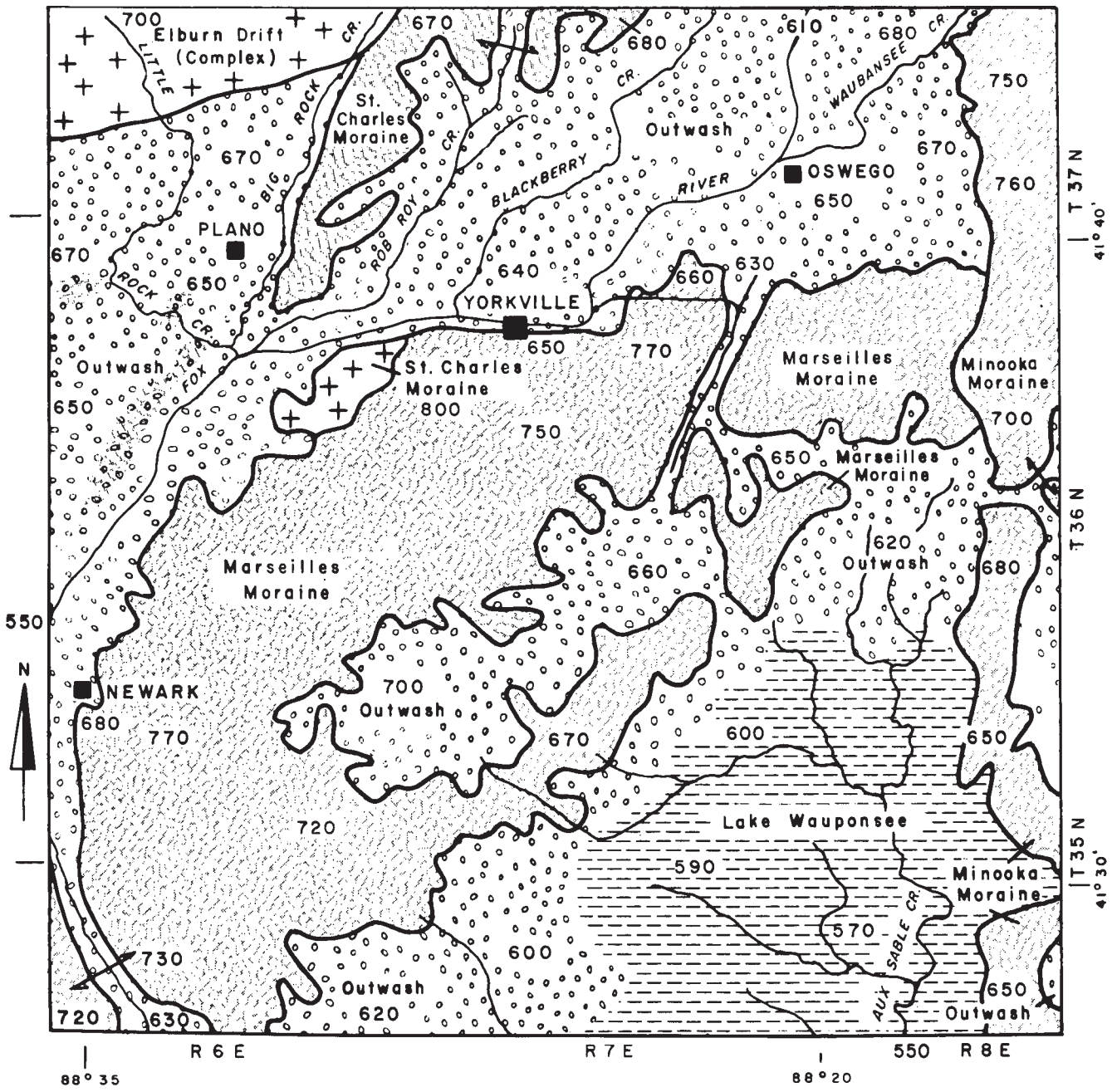


Figure 11.—**Glacial features of Kendall County.**

which the Saybrook and Strawn soils formed; and sandy loam, in which the Plano and St. Charles soils formed.

Glacial outwash is the stratified, sorted material deposited by melt water from the glacier. The outwash in the county has the textures of gravel and sand, in which the Lorenzo, Dresden, and Waupecan soils formed; silt and sand, in which the Proctor and Mundelein soils formed; and sand, in which the Sparta soils formed.

The lacustrine material, a form of glacial outwash, has the textures of silty clay loam, in which the Milford and Martinton soils formed; and silty clay and clay, in which the Bryce and Swygert soils formed.

The alluvium consists of sand, silt, clay, or other soil material that was deposited mainly on bottom lands by the floodwater from streams and rivers. The Sawmill, Millington, DuPage, and Landes soils formed in alluvium.

Organic material is partly decomposed and partly undecomposed plant remains that accumulated in swamps and

moved soil from cropped areas and have deposited it in other areas. Man has altered the natural condition of the soils by draining wet soils and swamp areas and by applying large amounts of lime and fertilizer. He has forced the beginning of a new cycle of soil formation in places where grading has destroyed soil profiles or filling has covered them.

Relief and drainage

In Kendall County, relief influences the formation of soils mainly through its effect on drainage. The slope of the soil affects the amount of runoff and, consequently, the degree of erosion and the amount of water that infiltrates and percolates through the profile. In areas where the soils formed in uniform, permeable parent material, such as silt loam, the natural drainage is closely associated with slope. The well drained and moderately well drained soils are in the more rolling areas, and the somewhat poorly drained and poorly drained soils are in nearly level or depressional areas. Kendall

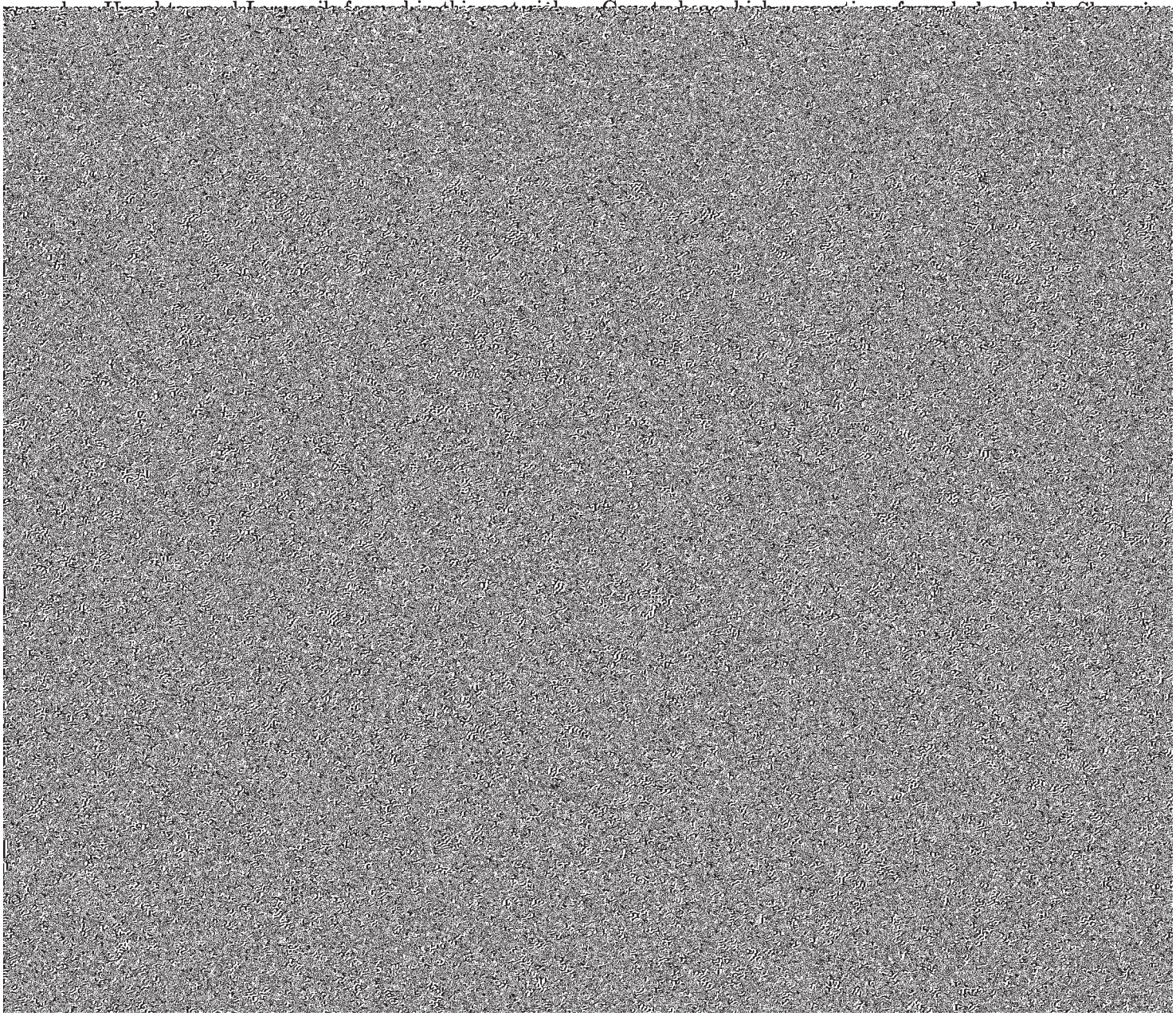


TABLE 11.—*Classification of soils*

Series	Family	Subgroup	Order
Barrington	Fine-silty, mixed, mesic	Typic Argiudolls	Mollisols.
Batavia	Fine-silty, mixed, mesic	Mollic Hapludalfs	Alfisols.
Brenton	Fine-silty, mixed, mesic	Aquic Argiudolls	Mollisols.
Bryce	Fine, mixed, mesic	Typic Haplaquolls	Mollisols.
Camden	Fine-silty, mixed, mesic	Typic Hapludalfs	Alfisols.
Del Rey	Fine, illitic, mesic	Aeric Ochraqualfs	Alfisols.
Dodge	Fine-silty, mixed, mesic	Typic Hapludalfs	Alfisols.
Dresden	Fine-loamy over sandy or sandy-skeletal, mixed, mesic	Mollic Hapludalfs	Alfisols.
Drummer	Fine-silty, mixed, mesic	Typic Haplaquolls	Mollisols.
DuPage	Fine-loamy, mixed, mesic	Cumulic Hapludolls	Mollisols.
Elburn	Fine-silty, mixed, mesic	Aquic Argiudolls	Mollisols.
Fox	Fine-loamy over sandy or sandy-skeletal, mixed, mesic	Typic Hapludalfs	Alfisols.
Harpster	Fine-silty, mixed, mesic	Typic Calciaquolls	Mollisols.
Hennepin	Fine-loamy, mixed, mesic	Typic Eutrochrepts	Inceptisols.
Houghton	Euic, mesic	Typic Medisaprists	Histosols.
Kendall	Fine-silty, mixed, mesic	Aeric Ochraqualfs	Alfisols.
Knight	Fine-silty, mixed, mesic	Argiaquic Argialbolls	Mollisols.
Landes	Coarse-loamy, mixed, mesic	Fluventic Hapludolls	Mollisols.
La Rose	Fine-loamy, mixed, mesic	Typic Argiudolls	Mollisols.
Lena	Euic, mesic	Typic Medisaprists	Histosols.
Lisbon	Fine-silty, mixed, mesic	Aquic Argiudolls	Mollisols.
Lorenzo	Fine-loamy over sandy or sandy-skeletal, mixed, mesic	Typic Argiudolls	Mollisols.
Martinton	Fine, illitic, mesic	Aquic Argiudolls	Mollisols.
Milford	Fine, mixed, mesic	Typic Haplaquolls	Mollisols.
Millbrook	Fine-silty, mixed, mesic	Udollic Ochraqualfs	Alfisols.
Millington	Fine-loamy, mixed, calcareous, mesic	Cumulic Haplaquolls	Mollisols.
Mundelein	Fine-silty, mixed, mesic	Aquic Argiudolls	Mollisols.
Nappanee	Fine, illitic, mesic	Aeric Ochraqualfs	Alfisols.
Peotone	Fine, montmorillonitic, mesic	Cumulic Haplaquolls	Mollisols.
Plano	Fine-silty, mixed, mesic	Typic Argiudolls	Mollisols.
Plattville	Fine-loamy, mixed, mesic	Typic Argiudolls	Mollisols.
Proctor	Fine-silty, mixed, mesic	Typic Argiudolls	Mollisols.
Ripon	Fine-silty, mixed, mesic	Typic Argiudolls	Mollisols.
Rush	Fine-silty, mixed, mesic	Typic Hapludalfs	Alfisols.
St. Charles	Fine-silty, mixed, mesic	Typic Hapludalfs	Alfisols.
Sawmill	Fine-silty, mixed, mesic	Cumulic Haplaquolls	Mollisols.
Saybrook	Fine-silty, mixed, mesic	Typic Argiudolls	Mollisols.
Sparta	Sandy, mixed, mesic	Entic Hapludolls	Mollisols.
Strawn	Fine-loamy, mixed, mesic	Typic Hapludalfs	Alfisols.
Swygert	Fine, illitic, mesic	Aquic Argiudolls	Mollisols.
Thorp	Fine-silty, mixed, mesic (fine)	Argiaquic Argialbolls	Mollisols.
Varna	Fine, illitic, mesic	Typic Argiudolls	Mollisols.
Virgil	Fine-silty, mixed, mesic	Udollic Ochraqualfs	Alfisols.
Waupecan	Fine-silty, mixed, mesic	Typic Argiudolls	Mollisols.

by the National Cooperative Soil Survey in 1965. Because this system is under continual study, readers interested in developments of the current system should search the latest literature (*7*).

The current system of classification has six categories. Beginning with the broadest, these categories are the order, the suborder, the great group, the subgroup, the family, and the series. In this system the criteria used as a basis for classification are soil properties that are observable and measurable. The properties are chosen, however, so that soils of similar genesis, or mode of origin, are grouped. In table 11, the soil series of Kendall County are placed in six categories of the current system. Classes of the current system are briefly defined in the following paragraphs.

Order.—Ten soil orders are recognized. The properties used to differentiate the soil orders are those that tend to give broad climatic groupings of soils. The two exceptions to this are the Entisols and Histosols, which occur in many different climates. The four orders represented in Kendall County are Inceptisols, Mollisols, Alfisols, and Histosols.

Inceptisols generally develop on young, but not recent, land surfaces. Mollisols generally develop under grass vegetation. They have a thick, dark-colored surface layer, called the mollic epipedon. Alfisols have a clay-enriched B horizon that is high in base saturation. Histosols are organic soils that do not have genetic horizons.

Suborder.—Each order is divided into suborders, primarily on the basis of characteristics that seem to produce classes that have the greatest genetic similarity. The soil properties used to separate suborders are mainly those that reflect either the presence or absence of waterlogging, or soil differences that result from the climate or vegetation. The climatic range of the suborder is narrower than that of the order. The names of suborders have two syllables. The last syllable indicates the order.

Great group.—Soil suborders are separated into great groups on the basis of uniformity in the kinds and sequence of soil horizons and features. The horizons used to make separations are those in which clay, carbonates, and other constituents have accumulated or have been removed and those that have pans that interfere with the growth of roots, movement of water, or both. Some features used are soil acidity, soil climate, soil composition, and soil color. The names of great groups have three or four syllables and are

made by adding a prefix to the name of the suborder. An example is Haplaquoll (*Hapl*, meaning simple horizons; *aqu*, for wetness or water; and *oll*, from Mollisols).

Subgroup.—Great groups are divided into subgroups, one that represents the central (typic) segment of the group and others, called intergrades, that have properties of the group and also one or more properties of another great group, suborder, or order. Other subgroups may have soil properties unlike those of any other great group, suborder, or order. The names of subgroups are derived by placing one or more adjectives in front of the name of the great group. An example is Typic Haplaquolls (a typical Haplaquoll).

Family.—Soil families are established within a subgroup mainly on the basis of properties important to the growth of plants or to the behavior of soils when used for engineering. Among the properties considered are texture, mineralogy, reaction, soil temperature, permeability, soil depth, and consistence. A family name consists of a series of adjectives preceding the subgroup name. The adjectives are the class names for texture, mineralogy, and so on, that are used to differentiate families.

Series.—The series is a group of soils that have major horizons that, except for texture of the surface layer, are similar in important characteristics and in arrangement in the profile.

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Glossary

Acidity. See Reaction, soil.

Available water capacity (also termed available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The ratings are: *very high*, 12 inches or more; *high*, 9 to 12 inches; *moderate*, 6 to 9 inches; *low*, 3 to 6 inches; and *very low*, less than 3 inches.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of clay on the surface of a soil aggregate. Synonyms: clay coating.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.
Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.
Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.
Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.
Sticky.—When wet, adheres to other material, and tends to stretch somewhat and pull apart, rather than to pull free from other material.
Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.
Soft.—When dry, breaks into powder or individual grains under very slight pressure.
Cemented.—Hard and brittle; little affected by moistening.

Depth, soil. Thickness of the soil over a specified layer, generally one that does not permit the growth of roots. The depths are: *deep*, 36 or more inches; *moderately deep*, 20 to 36 inches; *shallow*, 10 to 20 inches; and *very shallow*, less than 10 inches.

Drainage class (natural). Drainage that existed during the development of the soil, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven different classes of natural soil drainage are recognized.

Excessively drained soils are commonly very porous and rapidly permeable and have a low water-holding capacity.
Somewhat excessively drained soils are also very permeable and are free from mottling throughout their profile.
Well-drained soils are nearly free from mottling and are commonly of intermediate texture.
Moderately well drained soils commonly have a slowly permeable layer in or immediately beneath the solum. They have uniform color in the A horizon and upper part of the B horizon and mottling in the lower part of the B horizon and in the C horizon.
Somewhat poorly drained soils are wet for significant periods but not all the time, and some soils commonly have mottling at a depth below 6 to 16 inches.
Poorly drained soils are wet for long periods. They are light gray and generally mottled from the surface downward, but some have few or no mottles.
Very poorly drained soils are wet nearly all the time. They have a dark-gray or black surface layer and are gray or light gray, with or without mottling, in the deeper parts of the profile.

Diversion, or diversion terrace. A ridge of earth, generally a terrace, that is built to divert runoff from its natural course and, thus, to protect areas downslope from the effects of such runoff.

Erosion. The wearing away of the land surface by wind (sandblast), running water, and other geological agents.

Fertility, soil. The quality of a soil that enables it to provide compounds, in adequate amounts and in proper balance, for the growth of specified plants, when other growth factors such as light, moisture, temperature, and the physical condition of the soil are favorable.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes. These are the major horizons:

O horizon.—The layer of organic matter on the surface of a mineral soil. This layer consists of decaying plant residuse.
A horizon.—The mineral horizon at the surface or just below an O horizon. This horizon is the one in which living organisms are most active and therefore is marked by the accumulation of

humus. The horizon may have lost one or more of soluble salts, clay, and sesquioxides (iron and aluminum oxides).

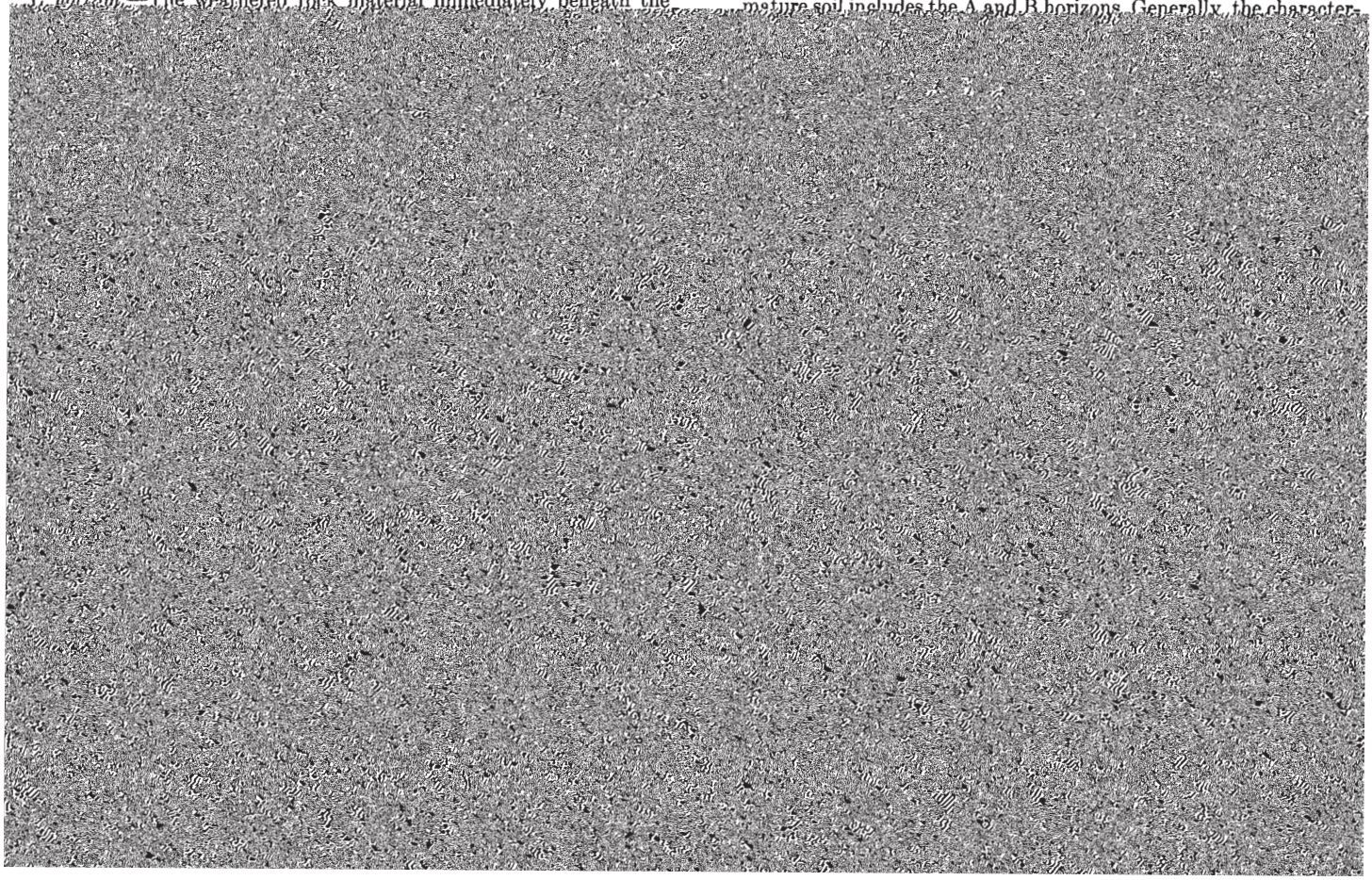
B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused (1) by accumulation of clay, sesquioxides, humus, or some combination of these; (2) by prismatic or blocky structure; (3) by redder or stronger colors than the A horizon; or (4) by some combination of these. Combined A and B horizons are usually called the solum, or true soil. If a soil lacks a B horizon, the A horizon alone is the solum.

C horizon.—The weathered rock material immediately beneath the

Sand. As a soil separate, individual rock or mineral fragments that range from 0.05 to 2.0 millimeters in diameter. Most sand grains consist of quartz, but the sand may be of any mineral composition. As a textural class, soil that is 85 percent or more sand and not more than 10 percent clay.

Soil. A natural, three-dimensional body on the earth's surface that supports plants and that has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the parent material, in which the processes of soil formation are active. The solum in mature soil includes the A and B horizons. Generally, the character-

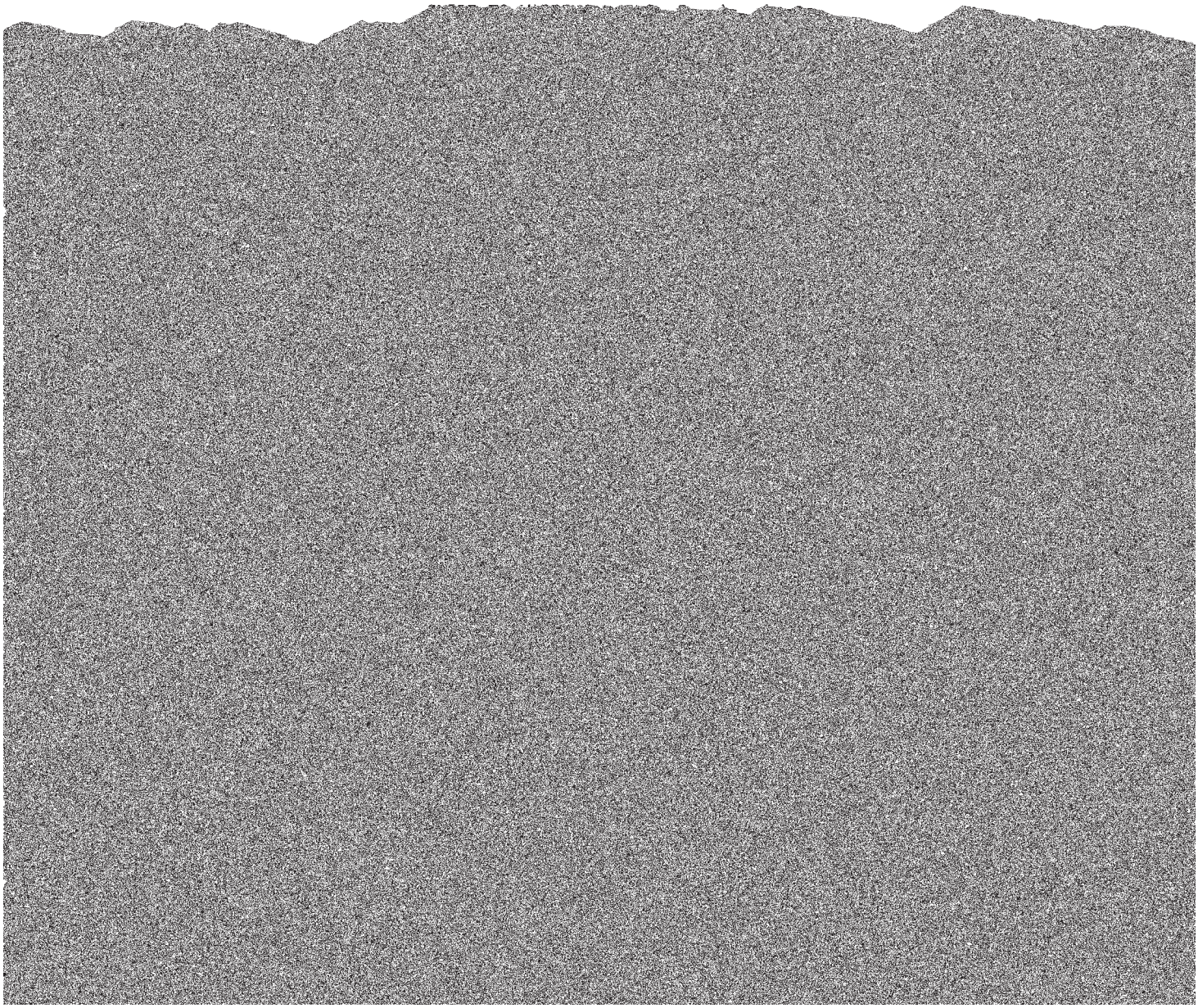


GUIDE TO MAPPING UNITS

For a full description of a mapping unit, read both the description of the mapping unit and the description of the soil series to which the mapping unit belongs. Other information is given in tables as follows:

Acreage and extent, table 3, page 7.
Predicted yields, table 4, page 42.
Windbreaks, table 5, page 44.
Recreation, table 6, page 46.
Wildlife groups, table 7, page 52.
Engineering uses of the soils, tables 8, 9, and 10, pages 54 to 71.

Map symbol	Mapping unit	Described on page	Management group		Tree planting group	Wildlife group
			Symbol	Page	Number	Number
24A	Dodge silt loam, 0 to 2 percent slopes	12	I-1	38	1	1
24B	Dodge silt loam, 2 to 4 percent slopes	13	IIe-1	39	1	1
24C2	Dodge silt loam, 4 to 7 percent slopes, eroded	13	IIe-1	39	1	5
25F	Hennepin silt loam, 15 to 30 percent slopes	17	VI	41	1	6
25G	Hennepin silt loam, 30 to 45 percent slopes	17	VII	41	1	6
59	Lisbon silt loam	21	I-2	39	2	2
60B2	La Rose silt loam, 2 to 4 percent slopes, eroded	19	IIe-1	39	1	1
60C2	La Rose silt loam, 4 to 7 percent slopes, eroded	20	IIe-1	39	1	5
60C3	La Rose soils, 4 to 7 percent slopes, severely eroded	20	IIIe-1	40	1	5
60D3	La Rose soils, 7 to 12 percent slopes, severely eroded	20	IVe-1	41	1	6
67	Harpster silty clay loam	16	IIw-1	39	4	3
69	Milford silty clay loam	23	IIw-1	39	4	3
R69	Milford silty clay loam, bedrock substratum	23	IIw-1	39	4	3
82	Millington silt loam	24	IIw-2	39	5	4
88C	Sparta loamy fine sand, 3 to 10 percent slopes	33	IIIs-1	41	1	5
91A	Swygert silty clay loam, 0 to 2 percent slopes	34	IIw-4	40	3	2
91B	Swygert silty clay loam, 2 to 4 percent slopes	34	IIe-2	39	3	2
91C2	Swygert silty clay loam, 3 to 7 percent slopes, eroded	34	IIIe-2	40	3	5
103	Houghton muck	17	IIIw-1	40	6	4
104	Virgil silt loam	36	I-2	39	2	2
105A	Batavia silt loam, 0 to 2 percent slopes	9	I-1	38	1	1
105B	Batavia silt loam, 2 to 4 percent slopes	9	IIe-1	39	1	1
107	Sawmill silty clay loam	31	IIw-2	39	5	4
134B	Camden silt loam, 1 to 4 percent slopes	11	IIe-1	39	1	1
134C2	Camden silt loam, 4 to 7 percent slopes, eroded	11	IIe-1	39	1	5
134D2	Camden silt loam, 7 to 12 percent slopes, eroded	11	IIIe-1	40	1	5
145A	Saybrook silt loam, 0 to 2 percent slopes	32	I-1	38	1	1
145B	Saybrook silt loam, 2 to 4 percent slopes	32	IIe-1	39	1	1
145B2	Saybrook silt loam, 2 to 4 percent slopes, eroded	32	IIe-1	39	1	1
145C2	Saybrook silt loam, 4 to 7 percent slopes, eroded	32	IIe-1	39	1	5
148A	Proctor silt loam, 0 to 2 percent slopes	28	I-1	38	1	1
148B	Proctor silt loam, 2 to 4 percent slopes	28	IIe-1	39	1	1
148C2	Proctor silt loam, 4 to 7 percent slopes, eroded	28	IIe-1	39	1	5
149	Brenton silt loam	10	I-2	39	2	2
R149	Brenton silt loam, bedrock substratum	10	I-2	39	2	2
152	Drummer silty clay loam	14	IIw-1	39	4	3
189A	Martinton silt loam, 0 to 2 percent slopes	22	IIw-4	40	3	2
189B	Martinton silt loam, 2 to 4 percent slopes	23	IIe-2	39	3	2
191	Knight silt loam	19	IIw-1	39	5	4
192	Del Rey silt loam	12	IIw-4	40	3	2
198	Elburn silt loam	15	I-2	39	2	2
199A	Plano silt loam, 0 to 2 percent slopes	27	I-1	38	1	1
199B	Plano silt loam, 2 to 4 percent slopes	27	IIe-1	39	1	1
199C2	Plano silt loam, 4 to 7 percent slopes, eroded	27	IIe-1	39	1	5
206	Thorp silt loam	35	IIw-1	39	5	4
210	Lena muck	20	IIIw-1	40	6	4
219	Millbrook silt loam	24	I-2	39	2	2
223B	Varna silt loam, 1 to 4 percent slopes	35	IIe-2	39	1	1
223C2	Varna silt loam, 4 to 7 percent slopes, eroded	36	IIIe-2	40	1	5
223D3	Varna soils, 7 to 15 percent slopes, severely eroded	36	IVe-1	41	1	6



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